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ASTRONOMIA BRITANNICA:

IN QUA

Per Novam, Concinnioremq; Methodum, hi quinq; Tractatus traduntur.

I. *LOGISTICA ASTRONOMICA*, quæ continet Doctrinam Fractionum Aſtronomicarum integram, tùm in Numeris Naturalibus, tùm Artificialibus.

II. *TRIGONOMETRIA*, ſeu Doctrina Triangulorum, (Analytica & Practica) quæ comprehendit Dimenſionem omnium Trigonorum, tàm Planorum, quàm Sphæricorum, cujus ope, Dimenſiones Cœli, Terræ, univerſiq; Mundi Orbis (modo mirabili) dignoſcantur.

III. *DOCTRINA SPHÆRICA*, quæ exhibet Longitudines, Latitudines, Declinationes, Aſcenſiones, Ortus, Occaſus, Intercapedines, Parallaxeſq; ſingulorum Planetarum ad cujuſlibet Sphæræ poſitum, & quo pacto Figuræ Cœleſtes erigi poſſint.

IV. *THEORIA PLANETARUM*, quæ Novâ, accuratâq; Methodo ſuper Hypotheſi *Copernicanâ*, veros Motus & Configurationes omnium Planetarum computare docet.

V. *TABULÆ NOVÆ ASTRONOMICÆ*, ex quibus Singulorum Planetarum Motus, & Luminarium Eclipſes, mirâ promptitudine colligantur.

Congruentes cum Obſervationibus accuratiſſimis Nobilis *TYCHONIS BRAHÆI.*

Cui acceſſit Obſervationum Aſtronomicarum *Synopſis Compendiaria*, ex quâ *Aſtronomiæ Britannicæ* certitudo affatim eluceſcit.

Opus exoptatum, non modò Aſtronomis, Aſtrologis, ſed & Theologis, Hiſtoriographis, Nautis, Medicis & Poetis, perutile & jucundum.

Cui additur Poſtſcriptum de *Refractione*.

Authore *VINCENTIO WING*, Mathem.

LONDINI,

Typis *Johannis Macock*, Impenſis *Georgii Sawbridge*, proſtantq; venales apud locum vulgò Clerkenwel-Green dictum. *1669*.

Clariſsimo D^no^ & Viro verè Venerabili,

D. *ROBERTO MARKHAM*,

Baronetto.

COgitanti mihi & circumſpicienti, quem demum Patronum Operi huic Aſtronomico eligerem, Nemo uſpiam alter, Vir Eximie, potior, digniorve occurrit, cujus præſidio Lucubrationes meas devoverem, aut qui ſuſcepti Patrocinii munus ex omni parte præſtantiùs exequi poſſet; quinimò hoc unum pro inſigni tuo candore fac exoratum habeam, ut hanc Cerebri noſtri Prolem propter Parentis tenuitatem tuendam ſuſcipere non dedigneris. Quanquam reverâ hujuſmodi Theoremata, propter iſtam, quam in fronte gerunt, Nobilitatis notam atq; argumentum, ſuæq; naturæ ſublimitatem, locum inter præcipuos Magnates meritò occupare ſolent. In Patroni autem delectu, & Dedicationis conſilio tot tantæq; extitêre rationes, quibus adductus fui, ut quocunq; oculos converto, undequaq; in conſpectum incurrant. Si ſpectamus enim ad Dignitatis tuæ faſtigium, & Stemmatis præcellentiam, quà inter Primariæ Magnitudinis Stellas in Orbe noſtro Britannico collocatus emicas, tanta

tibi circumfuſa eſt Claritas, ut vel eo ſolo nomine qualem & quantumcunq; hujuſmodi Tractatum facilè exigere & vendicare poſſis. Cùm verò contemplor egregias Animi tui dotes, quem omnimodâ Artium præſtantiſſimarum ſcientiâ, & univerſâ Literarum Encyclopædiâ uſq; excolere atq; exornare ſategiſti; quodq; præcipuè ad rem attinet, quanto ardore & faventi Minervâ ſtudiis Mathematicis *incumbas, quin &* mirifica Aſtronomiæ arcana, *& penitiorem Motuum Cœleſtium cognitionem confecteris; deniq; quàm benignis radiis, quàm fauſto & amico Aſpectu totam literatam Gentem, & imprimis* Matheſeos alumnos *faveas, foveaſq;; putavi me æquum pariter ac decorum officium præſtiturum, ſi has tuas laudes, animiq; Ornatum debitâ commemoratione celebrarem, & Literarium hoc Monumentum veluti Cognationis quodam jure Nomini tuo inſcriptum darem. Et non poſſum mihi non gratulari, quod ſub Auſpiciis tam eruditi Patroni in lucem prodeam, quódq; ingenii mei fœtus, ex* Urania *progenitus, ab ipſis incunabulis ulnis tuis ſuſtinendus ſuſcipiatur. Nec modicum inde fructum polliceor mihi proventurum. Primò enim futurum ſpero ut ſplendida ingenia ſitu & tempore excuſſo, ad Mundi ſpeculationem, adq; ingenuas artes tanquam ſuæ Nobilitati minimè incongruas, vel tuo Exemplo exuſcitentur: & miſſis noxiis voluptatibus, ludicriſq; exercitiis, ad miranda Philoſophiæ Myſteria, te* Authore, *animos expediant: Quandoquidem juxta* Poetam, Os *illis ſublime datum eſt, ut Cœlum aſpiciant, & vultus ad ſupernarum rerum, totiuſq; Orbis Contemplationem erectos tollant.*

Secundò, ſi qui Antiquorum dogmatum plus nimio tenaces Demonſtrationibus noſtris pertinaci propoſito, & deditâ operâ repugnabunt, aut ex eo forte, quòd Veteres Avias *nondum ſibi de pulmone revulſas habeant, confido opacum meum corpus tanto lumine, à nominis tui ſplendore immiſſo,*

miſſo, perfuſum atq; irradiatum fore, ut oculorum acies illis planè perſtringatur; & noſtra Argumentorum tela iis jam inhæſura, qui alioquin ſolius rationis acumen reflecterent, obtunderentq;. Sub candido tuæ Dignitatis & Favoris *umbone deliteſcens non eſt, quod diſpoſitas* Antagoniſtarum *Phalangas reformidem; ſed è contra rationis ſpicula ſecurus evibrare poſſim, ſicut olim puſillus ille* Teucer *apud* Homerum. *Iliad. f.* 8. *lin.* 266.

Πάλλοντα τόξα τιταίνων
Ἔστη ὑπ' Αἴαντος σάκεϊ Τελαμωνιάδαο.

Occlamitent licèt quantum libet, Objectionum moles exaggerent, & Gigantæo more contra Syſtema hoc noſtrum Cœleſte *montes contorqueant, & Oſſæ Pelion ſuperingerant; non dubito tamen rutilanti veritatis fulgure diſjectos fore, dum tu* Atlantis *ritu (præclari illius quondam Aſtronomi)* Cœlos meos humero ſuppoſito *fulcias, ſuſtenteſq;. Deniq; ſi ex hoc meo inſuper Præconio* Nominis tui *memoriam, Philoſophorum Ordini inſertam, præſenti, poſteroq; Sæculo inſignitam dabo, magnum in hac parte operæ-pretium ſe feciſſe arbitrabitur,*

Dignitatis Tuæ,

Totius Reipublicæ Literariæ,

Cultor deditiſſimus,

VINCENTIVS WING.

PRÆFATIO

AD

CANDIDUM LECTOREM.

DEus *Optimus Maximus* Δημιουργὸς πάντων, ϗ πατὴρ τοῦ ὅλου (qui quidem ab antiquiſſimo illo Philoſopho, *Hermete Triſmegiſto*, ſcitè deſcribitur, quòd ſit *intelligibilis Sphæra, cujus centrum ubiq;, circumferentia nullibi*) & principium eſt, à quo primùm proficiſcuntur omnia entia creata, & propoſitus eſſentiis ipſorum finis, ad quem ultimò etiam tendunt; inter ea verò homo (quamvis primævus lapſus eum magnâ felicitatis ſuæ parte denudârit) longè eminet, quandoquidem eum *Deus* eo rationis & intelligentiæ lumine ornavit, inq; terris *ſede commodiſſimâ* collocavit, ut admirandum contemplari poſſit ſapientiſſimi conditoris opificium, atq; aliquâ ex parte *ſupremum & infinitum illud ens* in Speculo Creaturarum cernere; quæ *ſapientiam illam perfectiſſimam* per reflectionem & quaſi limis exhibent intuendam; cum hebetior ſit mentis acies, quàm ut illam queat rectà aſpicere. Lippientes humanæ rationis oculi (ut *Moſes*) poſteriores tantùm *Divinitatis* partes aſſequuntur; maximum ejus ſpecimen in Cœlo deprehendimus. Nulla autem clarior ejus lux noſtris ſeſe oculis ingerit, quàm quæ è *cæleſtibus corporibus* Stellis emicat, quarum *ſtupenda magnitudo*, & *numerus*, & *ſumma pulchritudo* & *ſplendor*, & *motus ordinatiſſimus*, rationes concludendi efficaciſſimas præbent τὰ ἀόρατα τοῦ Θεοῦ &c. qui ſit infinitus pulcherrimus, & formoſiſſimus; ſeria quarum rerum conſideratio nos edoceat ad præcipuam creationis noſtræ finem attentè ſpectare, *laudem* nimirum, & *gloriam Creatoris*. Hâc ratione adductus *Philo Judæus* in libro ſuo *de Mundi opificio* aſſerit hominem in terris à Conditore tanquam in *Theatro* conſtitutum ad uniformia illa & varia ſpectacula conſpicienda, ideoq; vultus erectus homini datus eſt, qui & oculos & animum ad corporum cœleſtium contemplationem eveheret, ut *Plato* affirmat, cui accinit *Ovidius*, *Os homini ſublime dedit, cœlumq; tueri*, &c. quorum conſideratione nullus dubito, quin permotus *Regius Vates* exclamans diceret; *Cœli enarrant gloriam Dei, & opera manuum ejus annunciat firmamentum.* Digniſſima igitur ſanè eſt *Scientia Aſtrorum*, quam amplectamini, cùm de cœleſtibus agat corporibus, & quaſi manu ducat ad *theſauros eos*, qui nunquam poſſunt pro dignitate ſatis æſtimari, & quemadmodum doctiſſimus *Dee* aliquando dixit, *inviſibilibus lineis & radiis immortalibus ſubvectum ſupra cœlos animum*, & incomprehenſibilis lucis reflexionibus circumfuſum gaudio donat & perfectione ineffabili. Quis ergò hanc

aſtrorum

aſtrorum ſcientiam nun maximo haberet pretio, cùm aſtra fabricata eſſe videat ſingulari Dei providentia, ad amplianda magnifica Dei opera, quibus ſcrutando nunquam ſatiari poſſumus, ſiquidem multò his majora ſunt abſcondita? Hinc fuit, quòd non ita multò poſt conditum mundum Ars hæc ab *Adamo, Setho, Noacho*, excoleretur, ut teſtatur *Joſephus*, & alii, quod legere eſt Lib. 4 Cap. 14. de *Antiquit. Judaic. Abrahamum* etiam deinceps refert ejus peritiâ inſignem in Arithmeticâ & Aſtronomiâ *Ægyptios* primùm inſtituiſſe; aliqui tamen ejus inventionem *Chaldæis* aſcribunt & *Ægyptiis*, alii *Aſſyriis* & *Babyloniis*, alii contendunt *Æthiopas* primos ejus autores extitiſſe; nec etiam defuêre qui hujus inventi gloriam *Atlanti* aſſererent, de quo *Diodorus Siculus* Lib. 4. ſic ſcribit: *Atlantem ferunt Aſtrologiæ fuiſſe peritiſſimum, deq; Sphærâ primùm inter homines diſputaſſe*; quâ ex re viſus eſt Cœlum ſuis humeris ſuſtinere locum præbente fabulis Sphæræ inventione. De eodem S. *Auguſtinus* Lib. 18. de Civit. Dei ſic ait. *Atlas magnus fuiſſe Aſtrologus dicitur, unde occaſionem fabula invenit, ut eum Cœlum portare confingeretur.* Verùm quod ad me attinet, cùm *Joſepho* planè perſuaſum habeo, *originem ejus altiùs ab Adamo* arceſſendam eſſe: deinde ab illo ad *Sethum* fuiſſe propagatam; qui, cum vaticinio ab *Adamo* præmonitus eſſet, *Mundum aquis primùm, deinde igne periturum*, duas erexit columnas, alteram lapideam, lateritiam alteram, quibus Scientiæ hujus elementa inſculpſit, ut ab interitu vindicaret. *Uraniam* comperimus ſequentibus etiam ſeculis, qui excellentiam ejus contemplerentur, fautores ſuos habuiſſe, ante Chriſtum enim natum celebres fuiſſe legimus *Euctemonem, Timocharidem, Eratoſthenem, & Hipparchum.* Non multis poſt Chriſtum natum annis floruerunt *Ptolemæus, Menelaus, & Agrippa.* Aliquot deindè interjectis ſæculis orti ſunt *Albategnius, Arzael, Almeon, Prophatius Judæus*, quos inſecuti ſunt *Georgius Purbachius, Joannes Regiomontanus, Bernardus Waltherus, Nicolaus Copernicus, Reinholdus*, & Nobiliſſimus *Tycho Brahæus.* Noſtra demùm ætas viros inſignes, *Galilæum, Keplerum, Longomontanum, Gaſſendum, Lansbergium, Bullialdum*, Doctorem *Wardum*, alioſq; produxit, quorum ſolertiſſimæ inventiones, & induſtria admirabilis, excogitatis plurimis iiſq; præſtantiſſimis & accuratiſſimis demonſtrationibus, Scientiam hanc indies illuſtrârunt, & magis magiſq; perfecerunt. Verùm feliciſſima illa & ſummâ admiratione *digniſſima inveſtigatio*, quæ verum mundi Syſtema nobis retexit, cum juſtâ ſymmetriâ, & omnium ejus partium proportione, uberrimam reddit hujus noſtræ ætatis gloriam. Quid enim pulchriùs excogitari poteſt, quàm præclara mundi machina, *laudabile Dei opus*? Quid decentius ordine illo corporum & rerum omnium, quem *Deus* illis imperavit, & in æternum ſervandum dedit? Quamvis autem *Aſtronomia* ſit antiquiſſima, & omnibus retrò ſeculis eruditiſſimos quoſq; & celeberrimos ſtudium ejus occupârit; non niſi ſerò admodum ullum perfectionis gradum attigit. Sideralis enim Scientia à primâ

Mundi

Mundi origine ſuum agnoſcit ortum & progreſſum; quippe quæ lentè per ſuam infantiam, pueritiam, & adoleſcentiam, in juvenilem demùm ac virilem ſuccrevit ætatem. Veriſimile prorſus eſt, à *Patriarchis* ad *Ægyptios* & *Chaldæos* dimanâſſe, poſtea etiam in *Græciam* tranſiiſſe, ut teſtatur *Herodotus*, & unà cum eo *Theon Alexandrinus in Aratum*, ἐδέξατο δὲ αὐτὰ Ἕλληνες παρὰ Αἰγυπτίων καὶ Χαλδαίων: quibus aſtipulatur *Seneca Nat. Quæſt. Lib.* 7. *Cap.* 3. Nonnulli, perhibent *Thaletem Mileſium* in *Græciam* primùm intuliſſe, verùm liquidò conſtat uſum ejus in *Græciâ* fuiſſe *Thalete* antiquiorem, niſi *Homerum* dormitaſſe arbitremur, dum fingeret *Vulcanum Achilli* quaſi Matheſin calleret, Scutum fabricaſſe, quod *Mundi Syſtema* in ſe expreſſum complecteretur. *Iliad Lib.* 18. non procul à fine.

Ἐν μὲν γαῖαν ἔτευξ', ἐν δ' οὐρανὸν ἐν δὲ θάλασσαν
Ἠέλιόν τ' ἀκάμαντα, σελήνην τε πλήθουσαν·
Ἐν δὲ τὰ τείρεα πάντα τά τ' οὐρανὸς ἐστεφάνωται, &c.

Inter Græcos *Thales Mileſius* primus fuiſſe perhibetur, qui Eclipſes prædiceret, & Æquinoctia præmonſtraret, ut proditum eſt à *Diogene Laertio, in Thalete, Plinio Nat. Hiſt. Lib.* 2. *Cap.* 12. Huic *Ariſtarchus, Calippus, Eudoxus, Tymochares*, aliiq; ſucceſſerunt; labores verò eorum ſcientiæ huic expoliendæ momenti parum attulerunt, donec tandem *Hipparchus* firmiores demonſtrationes perveſtigaret, cujus nihilominus Tabulæ non fuêre omnibus numeris abſolutæ, quod ex *Ptolemæi Almageſto* liquet; floruit autem is annis proximè 160. à morte *Alexandri*, totidemq; ante natum humani generis Redemptorem. Is, teſte *Plinio Lib.* 2. *Nat. Hiſt. Cap.* 13. & 26. compoſitione *Ephemeridum* ad 600. annos inclaruit, unde dicitur *Hipparchus* conſiliorum Naturæ particeps; Scripta verò tàm hujus quàm illorum omnia temporum injuriâ perierunt, paucas ſi excipias demonſtrationes, & obſervationes aliquot fixarum & errantium Stellarum locis à *Ptolemæo* retentas, & in ſuam *magnam Syntaxin* tranſlatas, quorum uſus eſt inſignis, quamvis haud conferenda cum iis, quas exactiſſimas *exquiſitiſſimorum Inſtrumentorum* adminiculo cultior hæc ætas in medium protulit. Paulò poſt *Ptolemæum* (qui floruit centum quadraginta poſt natum Chriſtum annis) ſcientia hæc in *Africam* trajecit, & magnum illud *Ptolemæi opus* de Cœleſtium corporum revolutionibus in *linguam Arabicam* converſum eſt. Sub idem tempus, ſcilicet anno Chriſti 882. *Albategnius Arabs* Planetarum locos & Solis & Lunæ defectiones aliquot adnotavit. Poſt hunc *Fredericus Secundus Imperator* illud opus curavit in Linguam Latinam transferendum, atq; hâc ratione factum eſt, ut *Ptolemæus Arabum* diligentiâ Europæis innoteſceret linguâ ipſis familiari. Poſtea circa annum Chriſti 1252. Scientiam hanc reſtituendi & promovendi ardens ſtudium *Alphonſi Noni Hiſpaniæ* & *Caſtiliæ Regis* animum inceſſit, qui in eum finem, adhibitis in conſilium *Arabum, Maurorum, Ægyptiorum, Hebræorum, Hiſpanorum*

rum conſultiſſimis, illorum ope, maximis impenſis & induſtriâ ſummâ novas condidit *Tabulas Aſtronomicas*, quas ex illo tempore amplificarunt *Blanchinus*, *Prugnerus*, aliiq; Anno 1553. *Georgius Purbachius* novas etiam *Eclipſium Tabulas* è propriis obſervationibus edidit, quas poſtea ejus diſcipulus *Joannes Regiomontanus* emendavit, qui primus omnium in *Germaniâ*, quantum ego inter legendum obſervare potui, Ephemerides emiſit; cujus exemplum ſecutus *Stoflerus*, *Ephemerides* ſcripſit ab anno Chriſti 1507. ad annum 1556. & *Cyprianus Leovitius* ab anno 1556. ad annum 1606. *Alphonſi* Tabulis conſentaneas. Circa idem tempus in *Boruſſia* ortus eſt *Nicolaus Copernicus*, vir magni ingenii, cujus labores Aſtronomiæ perficiendæ plurimum contulerunt; nam non ſolùm à veteribus malè obſervata correxit, & ab illis omiſſa, maximâ admirabili curâ & induſtriâ multa ipſe inſuper adjecit: vetum etiam, ubi omnia diligentèr excuſſiſſet, planè deprehendit *Syſtema Ptolemaicum*, ad cujus normam Planetarum loci & motus antea exigebantur, falſum eſſe & rationi prorsùs repugnans, ideoq; illud omnino rejecit, ut in Libris *de Revolutionibus Orbium Cœleſtium* cuivis pateat, ubi validiſſimis ab eo demonſtrationibus è Geometriâ petitis evincitur, *Planetas omnes, Solem motibus ſuis circuire eum ſeu centrum reſpicientes*; atq; hâc ratione evenit ut omnibus qui ipſum antecedebant in veris Planetarum motibus, magnitudinibus, diſtantiis definiendis, ad veritatem propiùs acceſſerit; cui fundamento nixus *Eraſmus Reinholdus* ſuas *Prutenicas Tabulas* confecit, ex quibus *Joannes Stadius Ephemerides* ab anno 1554. ad annum 1606. *Maginus* ab anno 1580. ad annum 1630. *Origanus* ab anno 1595. ad annum 1654. & poſtremò *Argolus* ab anno 1600. ad annum 1660. compoſuerunt. Poſtea demùm præclarum, nobilemq; *Tychonem Brahæum* peperit *Dania*, qui cum jam ipſi exploratum eſſet, obſervationum defectu, Aſtronomiam ad optatum ſuæ perfectionis apicem nondum perveniſſe, necnon expertum eſſet *Conjunctionem Saturni & Jovis* anno Chriſti 1563. in Cancro, nec *Alphonſino* nec *Copernicano* calculo conſentaneam fuiſſe, imò aliquot dierum ſpatio diſcrepâſſe, ad *Aſtronomiam* inſtaurandam animum appulit; ex eo deinceps tempore varia inſtrumenta Mathematica ex ſuo ingenio excogitata confici curavit, locis Stellarum fixarum & Planetarum adnotandis accommoda. Ad hoc ſtudium maximè accendebat animum *novâ conſpectâ ſtellâ*, quæ integrum annum in *Caſſiopeiâ* refulſit, ubi longorum & accuratiſſimorum ope inſtrumentorum hujus inſoliti Phænomeni locum, & intervallum à fixis obſervâſſet, loca etiam & intervalla, inter fixas Stellas interjecta, ſpectatum jam illi erat tàm *Copernici* quàm eorum qui ipſum præceſſerant, non exactas obſervationes, & cœli ἀκρίβεια, ſed *longiſſimè abeſſe à veritate*, adeo ut viginti aut triginta minutis in locis conſtituendis, aliquando tòto penè gradu errare. Exinde etiam ſenſit *Copernicum* alia longè Planetis loca tribuiſſe, quàm quæ in Cœlo deprehenduntur, adeo ut aliquoties amplius duobus, tribus, aut quatuor gradibus à veritate recederet; quod quidem

quidem ingens diſcrimen in *Martis & Mercurii* motibus vulgo obſervârat, & ipſe *Copernicus* idem ferè agnoſcit in Præfatione *Ephemeridis Rhetici*, anni 1551. ubi hæc habet verba. *Ego* Copernicus, *ſi ad Sextantes, quæ ſunt ſcrupula decem, veritatem (in motu ſcilicet ſtellarum) adducere potero, non minus exultabo animo, quam ratione normæ reperta Pythagoram accepimus.* Quæ quidem omnia ita eſſe cùm exploratiſſimum haberet, continuos viginti annis in id totus incubuit, ut *Solis, Lunæ, Stellarum* errantium & inerrantium veros locos & motus quàm diligentiſſimè obſervaret, adhibitis in eam rem perlongis & exquiſitiſſimis Inſtrumentis, quæ habebat mirâ arte ex ſolido metallo fuſa; ubi jam tandem proprios *Solis, Lunæ, Fixarum Stellarum* locos indicâral, præmaturâ morte interceptus, (*obiit enim* 14. Novemb. 1601.) idem, quod illi etiam erat in animo, in cæterorum Planetarum motibus verè aperiendis efficere non potuit. Exinde ejus fideliſſimi in hoc opere ſocii, *Chriſt. S. Longomontanus* & *Joannes Keplerus* ad iſtam admiratione digniſſimam, cujus ille prima poſuerat fundamenta, fabricam abſolvendam, curam & operam copulerunt, quod tandem feliciori, quàm à quoquam expectari poſſet, ſucceſſu præſtiterunt. Quamvis autem *Longomontanus* ſcientiam hanc plurimùm perfecit, & rectiùs & accuratiùs quàm quiſquam alius, qui ante eum argumentum hoc tractârat, de Planetarum motibus diſſeruit, ut liquidiſſimè conſtat ex ejus *Aſtronomiâ Danicâ*; alter tamèn *Joannes Keplerus Tabulis* ſuis *Rudolphinis* pleniùs hâc in parte veritatem reſtituit, uti facilè perſpici poſſit ex inſtituta earum cum *Tychonis, Gaſſendi*, aliorumq; quorum peritia in Aſtronomiâ enituit, obſervationibus collatione. Animadvertendum verò *Keplerum*, optimam, viz. *Copernici Hypotheſin* amplexum eſſe, quæ Sola naturæ conſentanea eſt, quod ex demonſtrationibus ejus exactiſſimis in *Epitome Aſtronomiæ Copernicanæ*, & in *Myſterio Coſmographico*, necnon in Commentariis ejus *de motibus Stellæ Martis* perſpicuum eſt; quâ ratione ſemet à portentoſis illis & fictitiis *Peripateticorum* machinis expedivit, quibus primùm pro fundamento erant inſulſæ vulgarium & imperitorum Aſtronomorum opiniones, atq; ita omnium præcipuus evaſit *Aſtronomiæ inſtaurator*, uti teſtantur *Ephemerides* & *Calculationes* inde derivatæ, & in his tum ipſius *Kepleri* tùm *Eichſtadii*. Maximè autem Planeta *Mercurius* id comprobabit, qui 28 *Octobris* An. 1631. & rurſus 23 *Octobris* 1651. & 23 *Aprilis* 1661. inter Solem & viſum noſtrum interpoſitus aliquam Solaris corporis partem oculis noſtris abſtulit, in utrâq; apparitione *Keplerianæ Tabulæ* (*Copernicanæ Hypotheſi* conformes) veritati magis congruebant, quum *Longomontani & Argoli tabulæ* juxta *Tychonicum Syſtema* conformatæ multorum dierum errores continerent. Imò egomet deprehendi 7. *aut* 8. *gradus* circa motum hujus Stellæ à vero deficere, quod perſentiſcat quiſpiam Scientiæ gnarus, ſi loca huic Planetæ aſſignata in Tabulis iſtis cum Cœlo conferat.

Nec perpetuæ *celeberrimi Lansbergii Tab.* magni videntur æſtimandæ,

mandæ, tum propter formam, quæ neutiquam ad veritatis (ut ita dicam) *Lydium lapidem* exigi poteſt, cum præterea etiam quod obſervationes miſerè detortas ad ſuum inſtitutum accommodat, quod earum imperfectionem arguit, ut notat *Phocylides*, & nuper etiam clariſſimus *Natalis Durret* Gallus in Præfatione *Tabulis Richelianis* præfixâ. Sed elaborata doctiſſimi & diligentiſſimi *Bullialdi* opera digniora ſunt, ad quæ ſeriò animos attendamus, qui in ſuo *Syſtemate Philolaico*, demonſtrationibus Geometricis tùm *Ptolemaicum* tùm *Tychonicum Syſtema* nervoſè convellit, (quorum ultimum quiddam eſt ex *Ptolemaico* & *Copernicano* conſarcinatum) & conſpicuum reddit *Copernicanum Syſtema* ſolum eſſe verum, ex quo de omnibus Planetarum admirandis apparentiis & motibus (obſtupeſcentibus *Peripateticis*, aliiſq; liquidiſſimæ veritatis oppugnatoribus) exactiſſimum fieri poteſt judicium: huic fundamento ſuperſtruxit inſignem illum tractatum, qui inſcribitur *Aſtronomia Philolaica*, cujus eruditiſſimi viri acutiſſimæ inventiones id omninò promerentur, ut honeſto calamus meus ornet elogio. Verùm etiamſi ille juxta Problemata Doctiſſimi & Perſpicaciſſimi Mathematici *Franciſci Vietæ*, amplitudini & juſtæ Symmetriæ Orbium Planetarum, & eorum à Sole excentricitatum quantitati inveſtigandæ & determinandæ non inutilem navavit operam, diligenti tamen adhibito ſcrutinio, luce clarius erit Tabulas ejus non uſque adeo exactas, ut præconceptæ de eis expectationi per omnia reſpondeant, ſed à Phænomenis diſcrepare, cujus documentum *Stellæ Martis*, necnon *Solis & Lunæ Deliquia* præbebunt. In ſpem verò adducor fore ut egregium illud opus iteratâ editione limatiùs prodeat, prout pollicitus eſt in Libro cui titulum fecit, *Aſtronomiæ Philolaicæ fundamenta clariùs explicata & aſſerta adverſus clariſſimi viri* Sethi Wardi Oxonienſis *Profeſſoris impugnationem*. Et quidem non eſt unius ætatis, nedum unius hominis *Aſtronomiam* in integrum reſtituere: Multa obſcura ſunt, *poſteritatis Pandectis* involuta, nec retegenda uſq; dum *Deus Arbiter ſæculorum* æternum ſuum librum mortalibus expanderit.

Quod ad Scientiæ hujus dignitatem attinet, ea tanta eſt, atq; etiam omnibus notior, quàm ut opus habeam prolixiore ſermone laudes ejus perſequi. Uſus ejus ſi ſpectetur, quænam Scientia Reipublicæ præbet fructum uberiorem? Annon præcipuum eſt adminiculum quo ſuſtentatur Ars Nautica? Annon planè mutila eſt Geographia ejus ope deſtituta? quantum etiam utilitatis habet in *Hiſtoria, Poetica, Coſmographiâ*, & *Medicinâ*? Et quidem ampliſſimus ejus uſus adeo latè patet per omnia diffuſus, ut paucis complecti nequeam. Imò verò niſi hâc mediocritèr inſtructi ſimus, nobis æquè, atq; jumentis, quæ intereunt, & quibus non eſt intelligentia, inexplorata eſſent temporum diſcrimina. Verùm quia jam cupiam ſermonem hunc abrumpere, nè nimiâ prolixitate offendat, nihil ulteriùs adjiciam ubi hoc præfatus fuero in laudem *Magnæ Britanniæ noſtræ*, eam ſcilicet vicinis ſuis hâc in parte nullatenus cedere, ſed plurimos edidiſſe rei Mathematicæ

ticæ conſultiſſimos viros, viz. *Joannem* de *Sacro Boſco*, *Rogerum Baconum*, D. *Dee*, *Thomam Diggeſſeum*, illuſtrem *Nepairum*, *Brigginum*, *Gunterum*, *Gellibrandum*, *Oughtredum*, *Feſterum*, alioſq; : hodie nunc etiam apud nos florent viri ornatiſſimi *Joannes Wallis*, *Sethus Wardus*, Sacræ Theologiæ Doctores, & in *Academiâ Oxonienſi* Matheſeos *Profeſſores Saviliani*, alter *Geometriæ*, *Aſtronomiæ* alter. Quibus adjungam *Laurentium Rooks* & *Chriſtopherum Wren*, quorum primus *Geometriam*, alter *Aſtronomiam* in *Greſhamenſi Collegio* apud *Londinenſes* publicè docet. Nec me fas eſt prætetire D. *Doctorem Wilkins*, *Thomam Hobbs*, *Jo. Twyſden* M. D. *Joannem Wyberd*, M. D. *Carolum Scarborough* M. D. *Joannem Palmer* Eccleſiæ Ectonenſis Rectorem, *Gilbertum Clerke*, A. M. *Joannem Pell*, *Robertum Billingſley*, *Joannem Leeke*, *Jonam Moore*, viros hoc diſciplinarum admodum conſpicuos, qui quidem ipſi *ſuo Marte* multa præclarè invenerunt, aliquâ jam ex parte edita, &, uti ſpero, pleniùs poſthac preditura. Quod ad me attinet, quamvis cum quoquam ex egregiis hiſce viris minimè comparandus ſim, cùm tamen nemo inter illos, præter *Sethum Ward* quicquam de hoc argumento conſcriptum publici juris fecit, non dubitavi ſymbolum meum conferre λεπτὸν illud quidem, & in Matheſeos theſaurum immittere ampliandum. Hoc opuſculum à me oblatum ſpero aliquid fructûs & emolumenti æquo Lectori allaturum; quod ſi experiatur, candidè mecum agat; ſin optatum illum finem minus videar aſſecutus, ſcripta mea qualiacunq; cum veniâ, rogo, legat, quam eis haùd denegare poterit, ſi ex animo æſtimet.

Dabam Luffinghamiæ Anno Salvatoris noſtri 1665. Pridie Calendas *Martii*.

Vincentius Wing.

Ad *Vincentium Wing* *Mathematicum* non vulgarem, de *Aſtronomiâ* ſuâ *Britannicâ*.

SYdera *Vincenti* vincis! Doctâq; *Matheſi*
Summa petis *Cœli*, pandis & ima *Soli*.
Et quos non potuit *Ptolomæus* prendere *Motus*,
Remigio celeri Nobilis *Ala* docet.
Nempe tuo Cerebro terrarum vertitur Orbis,
Agnovit Sphæram *Mercuriuſq;* *Caput*.
Inclytus *Aſtronomus*, nec non *Geometra*, nitentem
In terras ducis cœlitus *Uraniam*.
Crede novum *Sydus* Tu nobis eſſe videris,
Arcana *Aſtrorum* qui reſerare potes.
Tycho Comes Solis, Lunæq; *Copernicus* Hæres,
Kepler & *Hevelius*, Te (*Jove* digna Cohors
'Αστρολόγων) Socium cupiunt; jam luce videntes
Germanas ſtellas, *Contiguoſq; Deos*.
Serus at in Cœlum redeas, ſi lumine tanto
Privemur, tenebris terra ſepulta foret.

Carmina (*Vincenti*) nunquam te ſcribere poſſim
Digna, niſi pennam tu mihi *Winge* dabis.

Engliſhed thus.

THe Stars thou conquer'ſt *Vincent*! Thy learn'd art
Doth things in Heav'n, and things on Earth impart.
Thoſe *Motions* which great *Ptolomie* could not reach,
With quick diſpatch thy *Noble Wing* doth teach.
The turning Earth Thou in thy brain doſt bear,
And *Mercurie* doth think thy head his Sphear.
Thy rare *Aſtronomie* and *Geometry*
Draws bright *Urania* from the ſpangled Sky.
Believ't a Star to us thou ſeem'ſt to be,
That doſt ſo well reveal Stars Myſterie.
The Sun's friend *Tycho*; and *Copernicus*,
The Moon's rich Heir, *Kepler*, *Hevelius*,
(With ſuch rare Artiſts) wiſh thy Company,
Who Stars their kinred, Gods their Neighbours ſee.
Late may'ſt thou go to Heav'n: for if thy light
Withdraws it ſelf from us, it will be Night.

Vincent thy praiſe in Verſe I ne're ſhall ſing,
Unleſs thou giv'ſt a Pen from thine own *Wing*.

J. Babington Trin. Coll. Soc. Cant.
& Rect. de *Boothbie Paygnel*.

Ad

Ad Amicum ſuum ingenuum, necnon ingenioſum Vincentium Wing *de Aſtronomiâ ſuâ Britannicâ Congratulatio Panegyrica.*

SAlve Scrutator Cœli, Terræq; Mariſq;
Menſor & Ætherei qui petis aſtra Poli ;
Salve Divinæ proles ſacrata Minervæ,
O animæ ſalve dimidiumq; meæ ;
Ex merito poſſim merito ſine tollere famam,
Dum patet in laudes area tanta tuas.
Non Cantabrigiæ nutritus tu, nec Athenis,
Et tamèn excultum grande volumen habes.
Non ſtirpem claram, nec avorum nobile ſtemma
Jactes, ſed dicat Jupiter eſſe patrem.
Non te plebeium tædet genuiſſe parentem ;
Non humili longè delituiſſe Caſâ.
Dum lateas, pateas, pulcherrima fabrica mundi
Cùm ſibi delituit, non latet ipſa tibi.
Si meditor miror, dum miror rumino, tanti
Undè tot ingenii magna Trophæa refers.
Fœmina ſi fueras, Pandoram ſæpè vocâſſem ;
Cunctorum retines munera clara Deûm.
Ex meliore luto finxit tibi pectora Titan,
Incuſſit genium Divus Apollo tuum.
Non te divitiæ, non te maleſana libido
Inflammat, nec te nox ſemipota mero.
Non te fulvus honos, nec amæni gloria mundi,
Mobilium tollit, nec levis aura virûm.
Tu non ſectaris lauti ſpectâcla Theatri ;
Nec te delectant jurgia rauca fori.
Altior urget amor, meliorq; incenderit ignis,
Incola tu Cœlis, his peregrinus agris.
Ignavos fucos hominum cane pejus, & angue
Oderis ; & vulgi ſordida facta vagi.
Stellarum Curſus tractas, ſoliſq, meatus,
Pallentem Lunam, ſidereaſq; domos.
Menſuram terræ ſtruis Ingenioſe, per altum
Mercatorq; vafer naviget arte tuâ.

Inſtruis

Inſtruis & Medicos ſalientem pollice venam
Tangere, & ægroto Pharmaca tuta dare.
Singula quid referam, ſpatioſi δείγματα libri?
Pagina non ſtringat, grande volumen habet.
Scribito Vincenti, feſtinè, ſcribito plura,
Et quâ cœpiſti pergere, perge viâ.
Cum volat illa dies, fragilis quæ ſtamina vitæ
Abrumpet, tali Carmine lectus eris.

Epitaphium.

Eccè Mathematicus jacet hìc pulcherrimus, in quem
Pierides ipſas deperiiſſe putes.
Atq; Geometricus perquàm clariſſimus, in quo
Singula menſuræ linea κέντρον ἔχει.
Conditur hoc tumulo pulvis, volat altus in auras
Spiritus, ad ſummi limina flava Jovis.
Nèc mirum moriens ſi ſydera Celſa petivit,
Quùm vivens inter ſydera sempèr erat.

Vale.

Ex vico *Empinghami-enſi* Idibus *Martii*, 1668.

Amicitiæ tuæ Devotiſſimus

Carolus Twickten.

Vincenti

Vincenti Wing *in Librum ſuum cui titulus* Aſtronomia Britannica, *Encomiaſticon.*

QUid mihi commemoras Priſcorum Scripta Virorum?
Huic peperêre Libro Secula nulla parem.
Argolum taceas, taceas ipſumq; *Bronotum*,
Nec ſit *Hali* in laudes prodiga lingua nimis.
Præripuit palmam *Wingus* Clariſſimus; Unus
Ille ſuos omnes vicerit arte potens:
Jamq; opus auſpicio felici exegerit, Orbi
Quo nullum toti gratius eſſe queat.
Ergò Muſa canas mando hoc Ἐπινίκιον illi,
Vincenti meritò dia *Corona datur.*

Jacobus Twiſt. Art. Mag.

WIng'd *with the Fame whereof, the Pen-man ſhall*
Fly Eaſt, and Weſt, and North, and South, and all:
And be where-ere he comes ſaluted thus,
Welcome renown'd Brito-Mercurius.

James Twiſt. A. M.

Amico ſuo Ornatiſſimo & ſummè Charo, Vincentio Wing.

COncelebrent omnes te laudum carmine, nunquam
Sat meritis dicent æquiparanda tuis:
Mirans, non laudans venio, labor irritus illud,
Cùm laudanda inter, nulla tacenda tenes.
I, decus Anglorum; te perlegat ultima Thule,
Et quos disjunctos cernit uterque Polus.
Invida ne metuas viroſæ vulnera linguæ,
Nil audet Python, dum tibi Phœbus adeſt.

Carolus Whitehall.

LOGI-

X—1

LOGISTICA ASTRONOMICA.

Liber Primus.

In quo, Fractionum Aſtronomicarum, Additionis, Subductionis, Multiplicationis, & Partitionis, tum Numeris Naturalibus, tum Artificialibus, Methodum Prænitidam brevi oſtenditur.

Cujus beneficio, Præcepta Calculi Motuum Cœleſtium, Aſtronomiæ Studioſis facilè redderentur.

Jo. Ant. Maginus, in Præfat. ad Canones.

Quicunque in eâ verſantur Aſtronomiæ parte, quæ Aſtrorum motus, ac Cœleſtium Orbium periodos numerorum ope metitur, quam ideo ſupputatricem vocant, tantum in Arithmeticâ profeciſſe eos neceſſe eſt, ut *Additionis, Subductionis, Multiplicationis, Partitionis*, & *Proportionum inventionis* CANONES norint: alioqui vanum in hoc Studio laborem ſumunt, ubi enim omnia numerorum ope perficiuntur, in eo verſare velle eum, qui numerorum rationes ignoret eorum ex numero eſt, quæ fieri nullâ ratione queunt.

Authore

VINCENTIO WING Mathematico.

LONDINI,

Typis *J. M.* pro *G. Sawbridge*, 1668.

LOGISTICÆ ASTRONOMICÆ

Pars Prima.

§. I.

PRiuſquàm *Lector* præclaram *Aſtronomiæ* doctrinam ingrediatur, quæ verorum locorum & motuum tùm Siderum tùm Planetarum calculum reſpicit, ut promptè noverit, quomodo addendæ, ſubtrahendæ, multiplicandæ, & dividendæ ſunt fractiones Aſtronomicæ, quovis more proportionalis pars in unaquaq; quæſtione invenienda ſit, *Aſtronomicam Logiſticam* perfectè ſe intellexiſſe neceſſum habet. Quin non minus perſpicuè, quàm breviter ſcribam, nè ſit ſupervacaneum aliquid, omiſſis præfationibus, modum dividendi circulum apud *Aſtronomos* uſitatum oſtendam; ut *Aſtronomicarum fractionum* naturam Lector intelligat.

Non ignari antiquiores *Aſtronomi*, veros & perfectos corporum Cœleſtium motus, accuratas ſuas dimenſiones per tota tantùm Signa & gradus recipere non ſemper potuiſſe, optimè cogitârunt circulum unumquemq; in 360. gradus diſtribuere; iterùm in duodecim partes Signa vocatas, unumquodq; Signum in 30. gradus diviſerunt. At verò (cum Alphonſo) ſi *Phyſicis* utaris *Signis*, quod magis aptum, in ſex partes dividitur circulus, quarum unaquæq; 60. gradus, Sexagenas nominatas, quiſq; gradus 60. minutas, minuta 60. ſecundas, ſecunda 60. tertias, & eodem more ad decimas uſque & ulterius, ſi modo opus ſit. Methodus hæc circulum dividendi ſemper æſtimata fuit aptiſſima, & ad hunc uſque diem continuata, quia nullus inventus eſt numerus aptus adeò recipiendi tot diviſiones ſub 100. ut 60. [Diviſio Circuli.]

Ordo diviſionis partium Circuli, vel temporis.

'''' ''' '' '	Gradus vel	' '' ''' iv. v. vi. vii.
4æ. 3æ. 2æ. 1æ.	Dies	1a. 2a. 3a. 4a. 5a. 6a. 7a.
SEXAGENÆ.	INTEGRA.	SCRUPULA.

Hactenùs idque breviter de diviſione circuli. Ad iſtas operationes Arithmeticas progrediamur, quæ Planetarum motuum calculum proximè exhibent. Quales ſunt, *Additio*, *Subtractio*, *Multiplicatio*, *Diviſio*, & *Methodus* inveſtigandi *partem proportionalem*.

§. 2. *Additio Aſtronomica.*

[πρόσθεσις]

ADditio eſt quæ è duobus, pluribuſve addendis elicit totum ſive ſummam, quâ medii Planetarum motus è Tabulis Aſtronomicis colligantur. Singulæ ergò notæ, ſive numeri addendi ſecundum ſpecies ſuas & denominationes perpendiculariter ſibi ſubjiciantur, viz. Signa Signis, gradus gradibus, minutæ minutis, Secundæ Secundis, & ſic de cæteris. In temporis autem additione, dies ſub diebus, horæ ſub horis, & minutæ ſub minutis diſponantur, quorum ſingula, lineis, punctis aut ſimilibus à ſe invicem diſtinguantur, ut uniuſcujuſq; valorem faciliùs acquiras. Sub numeris in unam ſummam colligendis ducatur lineola, & infra eam aggregatum, ſeu ſummam totalem ſcribas. [Definitio Additionis.] [Prima regula.]

Secunda Regula. Tertia Regula. ſcribas. Cum primâ Columnâ ad dextram ſemper incipias, ſingulos numeros in iſtâ perpendiculari in unum colligas: eodem modo verſùs ſiniſtram procedas uſque dum perficiatur Additio: Ut verum denique ſummarum valorem habeas ad dextram iterùm incipias, & quoties ex ſecundis ſexaginta colligantur, tot unitates accedunt primis, quoties ex primis ſexaginta habeas, tot unitates adjiciantur gradibus. At memor eſto quando ad gradus perveniſti, quoties numerus triginta excedit, tot unitates (niſi Phyſicis utaris Signis, ubi prædicta obſervanda eſt methodus) ſignis addas. Quoties denuò ex Signis duodecim colligas, rejiciantur toties duodecim; reſidua ſingula ſub ſpeciebus ponantur. *Exempli gratiâ.*

Exemplum.

Sig.	Grad.	′	″	Denominationes Specierum.
6	28	25	17	Numeri ſimul addendi.
8	4	41	56	
9	22	26	20	
	9	10	41	
		·4	1	
		· 1	,40	
			·1	
21	63	106	176	Summa conſurgens.
11	4	48	56	Summa reducta.

Declaratio Exempli. *In Exemplo hoc.*

1. Cum Secundis ad dextram incipio, earum ſummam (ſecundum *Arithmeticam vulgarem*) 176. invenio, divido per 60. erit Quotiens 2. reſiduum 56. ideoq; 56. in ſecundarum columnâ pono.

2. in ſecundâ columnâ additionis ſummam invenio 106. cui adjicio 2. numerum mente retentum, ſumma erit 108. divido ergò per 60. erit Quotiens 1. reſiduum 48. quod depono.

3. in columnâ gradûs ſumma eſt 63, cui addatur unitas retenta, ſumma eſt 64. divido per 30. (quia 30 gradus Signum conſtituunt) quotiens eſt 2 reſiduum 4 depono 4, & 2. quotientem Signis adjungo, quorum Summa eſt 23. rejicio duodecim, reſtant undecim Signorum. Ergò Summa totalis hujus additionis eſt Sig. 11. gr. 4. 48′. 56″.

Modus alius. At frequentiùs ego hoc more procedo. Primò ſecundarum unitates ſimul colligo, quæ in hoc exemplo ſunt 16. depono 6. & unitatem ejuſdem columnæ decimis adjicio, decimarum Summa cum unitate adjecta eſt 17. iſtum numerum divido per 6. Quotiens eſt 2. reſiduum 5. quod depono.

Secundò, Minutarum unitates ſimul capio, quæ hic 16. ſunt, quibus 2. Secundarum quotientem adjungo, faciunt 18. depono 8. & unitatem retineo, quam ejuſdem Columnæ decimis, videl. 9. adjicio, Summa erit 10. divido per 6. datur Quotiens 1. reſiduum 4. quod depono decimarum loco.

Tertiò, eadem methodo, & graduum unitates ſimul colligo, quæ cum unitate minutarum quotiente erunt 24. ſubſcribo 4. reſtant 2. quos graduum decimis addo, ſumma erit 6. divido per 3. (quia 30. gradus totum efficiunt Signum) Quotiens eſt 2. reſiduum 0, depono 0. & 2. quotientem Signorum numero adjungo, cujus ſumma eſt 23. rejectis deindè 12. remanent 11; Eſt ergò aggregatum ut anteà Sig. 11. gr. 4. 48′. 56″.

§. 3. *Sub-*

§. 3. *Subductio Aſtronomica.*

ἀφαίρεσις

Definitio ſubductionis.

SUbductio numerum alium ex alio auſert, ut reſiduum, ſeu differentia duorum propoſitorum numerorum cognoſcatur. Ubi *ſimilia* ſub *ſimilibus* collocantur, ut in additione. Ita verò ut numerus à quo fieri debet Subtractio locum ſuperiorem habeat, ſubtrahendus inferiorem; Initio ad dextram facto, à minori ad majorem ſpeciem progrediaris. Si autem in aliquâ Specie numerus inferior à Superiore ſubduci nequit, mutuanda eſt unitas à viciná præcedente Specie verſus Siniſtrum, & reſolvenda in numeri ſubtrahendi denominationem, quæ à primis ad ſecundas, & à gradibus ad primas, eſt 60. at verò de ſignis in gradus, ſi non ſint *Phyſica Signa*, eſt 30. Addatur mutuatus numerus numero deficienti & fiat Subductio reſiduum ſubſcribens. Ad proximam procedas Columnam, at memor eſto ſicut in additione, redundante Sexagenario ſub aliquâ Specie, unitas transfertur ad antecedentem, ità his deficiente ſpecie conſequente, antecedens veluti gratiam relatura ſuccurrit. *Regulæ.*

Exempli gratiâ. Sig. 2. gr. 10. 8′. 44″. Subtrahenda ſunt à Sig. 6. gr. 0. 10′. 32″.

Sig.	Gr.	′	″	Denominationes Specierum.
6	0	10	32	Numerus à quo Subtractio fit.
2	10	8	44	Numerus Subtrahendus.
3	20	1	48	Numerus proveniens ex Subtractione.

Exemplum.

Videas hic 44″. ſubtrahenda ſunt à 32″. quia fieri nequit, mutuari oportet unitatem à proximâ ad ſiniſtram areolâ, quæ hoc in loco 60. æquat, qui cum 32. faciunt 92. ex quibus 44. ſubduc, reſtant 48. In proximâ areolâ à 9. deficiente mutuatâ unitate, ſubduco 8. reſiduum 1. quod depono. Ad gradus procedo, ubi 10. grad. Subtrahendi ſunt à 0. grad. Ergò mutuari debes Signum, quod hic æquat 30. Subducas 10. reſtant 20. Denique ex 5. Signis (quia mutuatum fuit unum Signum) Subtraho 2. reſiduum eſt 3. Reliquus ergò totalis eſt Sig. 3. gr. 20. 1′. 48″. *Declaratio Exempli.*

Probatio, ſive Examen, ut in populari Arithmeticâ, fit per Subductionem, Si enim numerum reſiduum ſubtrahendo ſive inferiori addideris, neceſſariò componetur numerus à quo fit Subtractio. *Exempli gratiâ.* Sig. 3. gr. 20. 1′. 48″. addantur Sig. 2. gr. 10. 8′. 44″. conſtituunt Sig. 6. gr. 0. 10′. 32″, numerum à quo fit ſubductio. *Δοκιμασία vel examen.*

Nota, Si totus numerus inferior major eſt numero à quo ſubtractio facienda eſt, integer ordo Signorum, aut Revolutio integra Circuli, ſcil. gr. 360. aut 6. Sexag. adjiciatur numero ſuperiori, quando Supputatio eſt de motu. In ratione verò temporis, integer annus, menſis, aut dies, prout calculus requirit. *Major numerus quomodo ſubtrahendus à minori.*

§. 4. *Multiplicatio Aſtronomica.*

πολλαπλασιασμός.

Definitio multiplicationis.

MUltiplicatio eſt ex duobus numeris datis tertii propagatio, ita ut uterlibet eorum toties, ſibi ipſi accumeletur quoties in altero ſunt unitates vel punctilis multiplicando unum in alterum. Optima, ut mihi videtur, methodus eſt per Sexagenarum Canonem, cujus uſum videas in *BLUNDEVILI exercitiis*, & neceſſitudinis gratiâ, ejus methodum binis modis oſtendam. Primò itaque major numerus ſive Multiplicandus ſupernè, minor ſeu multiplicans infernè, *Uſus Canonis.*

Ἑξηκοντάδων & ratio multiplicandi.

infernè, commodiſſimè collocatur, adeo ut unius ſpecies alterius ſpeciebus rectè ſubjiciuntur, ubi nè error evadat, lineâ perpendiculari diſtinguantur. Hoc facto, ſingulas ſummas, juxta *vulgarem Arithmeticam* in ſe invicem multiplices, ſimul colligantur, unamquamq; Columnam, ſi modo excedat 60. divide per 60. deponas reſiduum, quotientem proximè ad Siniſtram columnæ adjiciat, & ſic de cæteris, uti in additione. At magis perſpicuè videbis in hoc Exemplo.

Exemplum Primum.

Sig.	Gr.	′	″	‴	iv.	Specierum denominationes.
	17	24	10			Multiplicandus.
	10	11	3			Multiplicans.
			51	72	30	Singula Producta.
		187	264	110		
	170	240	100			
2	57	13	58	2	30	Summa totalis.

Declaratio.

Primò multiplico 3. in 10. faciunt 30. in quartam denominationem colloco, quia Specierum ſupra utrumq; denominatio eſt 2, quæ duplicata erit 4. peculiarem Producti denominationem monſtrans. Iterùm multiplico 3. in 24. faciunt 72. itaq; 72. infra tertiam denominationem pono, quia 2. denominatio ſupra 3. & 1. denominatio ſupra 24. faciunt 3. denominationis locum productæ dirigentes. Hàc methodo agas de cæteris, uti demonſtrabit *Exemplum.* Addantur denique ſimul, ut ſupra præcepi, proprio loco quamvis ſummam deponendo, & ſi excedit, quævis ſumma 60. divide per 60. ſubſcribas reſiduum, & quotientem proximæ ad ſiniſtram columnæ adjicias. At de his dictum ſatis facilis adeo eſt operatio ut prolixiore explanatione non opus eſt. Operationem denique per *Sexagenarium Canonem* exhibeam.

Aliud Exemplum per Tabulam Sexagenariam.

Sig.	Gr.	′	″	‴	iv.	Specierum denominationes.
	17	24	10			Multiplicandus.
	10	11	3			Multiplicans
			52	12	30	Singula Producta.
	3	11	25	50		
2	54	1	40			
2	57	13	58	2	30	Aggregatum, ſeu Summa

Explicatio.

Hic ſecundum *Sexagenarium Canonem*, multiplico 3. in 10. faciunt 0. 30. idq; per ſupradictam rationem infra indicem, aut denominationem 4. ſubſcribo. Iterùm multiplico 3. in 24. quæ ſecundum Canonem faciunt 1. 12 cujus 12. peculiari loco depono, & 1. retineo. Tertiò, multiplico 3. in 17 & Summæ ſeu producto 51. adjicio 1. ſeu unitatem retentam, faciunt 52. quæ propriæ columnæ accedunt, uti exemplo patet. Peractâ itaq; primâ multiplicantis figurâ, abraſa ſit, ad proximam procedo, ſcil. 11. eamq; multiplico in 10. faciunt 1. 50. ſubſcribo 50. & retineo 1. Iterùm multiplico 11. in 24. faciunt 4. 24. adjungo unitatem mente retentam, faciunt 4. 25. depingo 25. & retineo 4. Multiplico denique 11. in 17. & producto 3. 7. adjungo 4. numerum retentum, faciunt 3. 11. quæ proprio ordine uti priùs diſpono. Ad tertium itaq; locum procedo, ubi multiplico 10. in 10. cujus productum juxta Canonem erit 1. 40. depingo 40. & retineo 1. Secundo, etiam 10. in 24. cujus Summa erit 4. 0. adjiciatur unitas retenta, faciunt 4. 1. Subſcribo

1. & retineo 4. Ultimo igitur multiplico 10. in 17. facit 2′. 50. cui additis retentis, evadunt 2. 54, quas proprio Ordine disjunctim colloco. Hoc facto, adduntur ſinguiæ, *Summa totius Multiplicationis* erit Sex. 2. gr. 57. 13′. 58″. 2‴. 30 iv. ut priùs.

§. 5. *Diviſio Aſtronomica.*

μερισμὸς ἢ παραβολή. Definitio.

D*iviſio* eſt diſtributio Numeri in partes, quærendo quoties alter numerus in ipſo continetur, ut numerus tertius, Quotiens vocatus, inveniatur, numerum quamvis datum ſi dividas, primò indices ſive ſpecierum denominationes, ut ſupra diſponantur, ſub quibus dividendus & diviſor, uti in *ſequente Paradigmate* manifeſtum eſt, collocantur. Hoc facto ad ſiniſtram incipiens, utrum primus diviſoris numerus dividendi primo major ſit perpendas, tum enim in proximum ad dextram locum diviſoris numerus removeatur, & primam dividendi figuram in 60. multiplices (quia unaquæq; unitas proximè ad dextram gradu valet (vel 60′.) huic facto, ſequentem dividendi figuram adjungas, toties ſummam dividat, diviſor, prædicto modo, quoties nimirùm prima figura illius ſummæ in primâ dividendi figurâ continetur inveſtigando, & quotientem in prompto ad dextram ſpatio reponas. Iterum præfatum quotientem in diviſorem trahas, cujus factum à dividendo ſubtrahas, reſiduum proprio infra loco habeas, ſub quo iterùm diſponatur diviſor, quo dividendi reſiduum ut ſupra dividas, hoc more quoties in ipſo ſit, quærens ſecundam quotientis figuram extrahas. Si verò dividendi aliquid reſtat, ut ſupra procedas uſquedum perficiatur opus. Exempli gratiâ. (Ordo Partitionis.)

Sex.	Gr.	′	″	‴	iv.	Denominationes.	
2	57	13	58	2	30	Dividendus.	
	10	11	3			Diviſor.	
2	53	7	51				
	4	6	7	2	30	Reſiduus.	
		10	11	3		Diviſor.	(Gr. 17. 54′. 10″.
	4	4	25	12			
		1	41	50	30	Reſiduus.	
			10	11	3	Diviſor.	
		1	41	50	30		
		0	0	0	0	Reſiduus.	

Exemplum.

Primò ad ſiniſtram incipio, & quia 10. in 2. non habeo, ſuperiorem figuram 2. ſecundum Sexagenariam diviſionem reduco in 120. cui 57. adjungo, ſumma 177. grad. Ubi diviſorem 10. ſepties decies invenio, quam primum quotientis numerum æſtimo: itaque 17. in diviſorem, gr. 10. 11′. 3″. multiplico, factus erit Sex. 2. gr. 53. 7′. 51″. hos ordine proprio ſub dividendo colloco, & poſt ſubtractionem, reſiduum gr. 4. 6′. 7″. 2‴. 30 iv. deſtinato loco depono, ſub quo diviſorem, uti in operatione manifeſtum eſt, diſpono. (Expoſitio Exempli.)

Secundo 10. in 4. non invenio, 4. itaq; multiplico in 60. & facto 240. addo 6. Summa erit 246. in quo diviſorem 10. viginti quater reperio, quam ſecundam quotientis figuram facio, hoc numero diviſorem 10. grad. 11′. 3″. multiplico, cujus factum gr. 4. 4′. 25″. 12‴. à ſuperiore reſidua ſubduco, reſtant 1′. 41″. 50‴. 30 iv. ſub quo iterùm diſpono diviſorem, & quoniam 10. non eſt in 1. traho 1. in 60. quibus 41. additis, habes 101. ubi 10. decies invenias, quam tertium quotientis numerum conſtituo.

Tertiam

Tertiam denique quotientis figuram 10. in diviſorem gr. 10. 11′. 3″. traho, cujus factus 1′. 41″. 50‴. 30 iv. reſiduo ultimò invento æqualis, operis terminationem demonſtrat.

Cautio. Duo reſtant in diviſione notanda, unum ſcil. figuram in quotiente aliquam in diviſorem priùs tractam, dividendu aut ejus reſiduo, à quo ſubtrahenda eſt, majorum invenias, iſta figura in quotiente unitatem amittat. Alterum ſi ſpeeierum denominationes in diviſione cupis, ad prædicta in multiplicatione Præcepta recurras.

Alia ratio. Antecedentem operationem cum Tabula Sexagenaria multò faciliùs efficias, inveniens enim 10. in tabellæ capite, deſcendas in eâdem Columnâ donec ſummam 2. 57. proximè minorem habeas, quæ eſt 2. 50. cui ad ſiniſtram in primâ columnâ opponitur 17. itaque in diviſorem traho, *factus* erit 2. 53. 7. 51. ſubtrahas à dividendo, habes 4. 6. 7. 2. 30.

Secundò in eâdem *Tabellâ* ſub 10. quæro numerum 4. 6. proximè minorem reperio 4. 0. cui primâ ad ſiniſtram columnâ iterum opponitur 24. quem numerum in diviſorem traho, & factum ut ſupra à dividendi reſiduo ſubtraho; hoc modo procedens dum perficiatur diviſio. Nulla enim eſt differentia, quia numeri in Tabellâ ad Sexagenariam diviſionem redacti ſunt magis expediti.

[illegible]

§. 6. *De methodo inveſtigandi Partem Proportionalem.*

Regula trium. Quæ ſit pars Proportionalis.

PRoportionalis pars regulâ trium, vulgò aurea regula appellatâ, inveſtiganda eſt, in quâ tres proportionales numeros habeas ut invenias quartum. *Methodus* eſt, multiplicando ſecundum in tertium, iſtorum factum primo dividas, quotiens erit quartus, ſive pars proportionalis. Propter utilitatem hujuſce Regulæ in calculationibus Aſtronomicis, Exemplum unum aut alterum exhibeam, ut cognoſcas quomodo omnes aliæ ejuſdem generis quæſtiones reſolvantur, quo ſine primum habebo de parte proportionali in tabulis *Æquationum, Planetarum*. Supponas itaq; Anomallam *MARTIS*, Sig. 4. gr. 10 26′. 5″. cujus æquationem quæris.

Operatio.

	S.	gr.		gr.	′	″
Anomalia Martis	4	10	Æquationes	8	45	10
	4	11		8	38	20
Æquationum differentia.					6	50

Exemplum. Dicas ergò, ſi 1. gr. aut 60′ dant 6′ 50″. quot 26′ 5″. dabunt: Quoniam denominatio prior eſt gradus ſeu integer, tantum multiplices ſecundum in tertium, & numerus productus eſt pars proportionalis.

′	″	‴	iv.	Denominationes Specierum.
26	5			Multiplicandus.
6	50			Multiplicans.
	21	44	10	
2	36	30		
2	58	14	10	Pars Proportionalis.

Æquatio correſpondens Sig. 4. gr. 10. gr. 8 45′ 10″.
Pars Proportionalis Subtr. 2 58.
Æquatio correſpondens Sig. 4. gr. 10. 26′. 5″. gr. 8 42 12.

Quamvis

Quamvis *Pars proportionalis* ultra Secundas tum tertias tum quartas habet, minutis & ſecundis tantum retentis, tutò rejicias & tertias & quartas, uti in Exemplo. Cautela.

In aliis Operationibus ubi primi denominatio eſt fractio, etiam & diviſionem uti neceſſum habes, poſt enim multiplicationem ſecundi in tertiam, etiam productus numerus à primo dividendus.

Exempli gratiâ. Habeamus Lunarem Eclipſin 1659 *Aprilis* 26. die, ubi notis tum quantitate *lunaris Diametri* 33′. 16″. tum deficientibus Scrupulis 24′. 17″. etiam & tenebroſam partem in digitos cupio. Tota ergò Diameter Lunaris in duodecim digitos diviſus, queſtio eſt hujuſmodi. Exemplum.

Si 33′. 16″. dant 12 Digitos, quot dabunt 24′. 17″?

Dig.	′	″	‴	iv.	Denominationes Specierum.	
12	0				Multiplicandus.	
	24	17			Multiplicans.	
4	51	24	0		Productum.	
	33	16			Diviſor.	
4	26	8				
.	25	16				Digiti Eclipticí.
		33	16		Reſiduum.	8ᴵ. 45′. 34″. 16‴.
	24	57	0			
		19	0		Reſiduum.	
			33	16	Diviſor.	
		18	51	4		
			8	56		

Primum multiplico 24′. 17″. in 12. dig. vel grad. productus erit gr. 4. 51′. 24″. 0‴. quem uti in operatione divido cum 33′. 16″. quotiens erit Dig. 8. 45′. 34″. prædictæ Eclipſeos quantitas.

In *Calculationibus Aſtronomicis* aliquando evenit, ut numerus Sexagenarius in ſecundum cadit locum, quando dicemus, Si 48′. 28″ dant 60′. quot dabunt 25′. 10″? hic multiplico 25′. 10″. in 60′. & productum gr. 25. 10′. 0″. divido per 48′. 28″. Quotus erit 31′. 9″. pars proportionalis.

§. 7. *De Aſtronomicarum fractionum biſectione.*

IN biſectione *Summæ Aſtronomicæ*, ad ſiniſtram incipiens, ut in diviſione præmonitum eſt, dividas per 2. inprimis de Signis agens (ſi numerus hucuſq; extendit) ubi in inæquali numero accipias proximè minorem, & pro redundante unitate, 30. ad gradus portas, his additâ quantitate in graduum loco inventâ, dividas aggregatum per 2. ſi redundat unitas, 60. ad minuta portas, minutarum ſummam, cum his 60. dividas per 2. Si redundat unitas, 60. accedunt ſecundis, & iterum biſeces (ut ſupra) donec unuſquiſq; bipartitur locus; deinde Quotientem in 2. trahas ſive duplices, & ſi productus numerus dividendo æqualis, recta eſt operatio, aliàs falſa. Supervacanea penè eſt explicatio, quia autem nihil obſcurum videatur, dabo *Exemplum*, Sig. 7. gr. 13. 45′. 16″. Modus biſectionis Fractionum Aſtronomicarum.

C Sig.

Exemplum.

Sig. Gr. ′ ″.				Indices.
7	13	45	16	Summa totalis data.
3	21	52	38	Semiſſis Summæ.

Exemplo hoc numerum 2. ter habeo in 7. Sig. & 1. reſiduum, pro redundante iſtâ unitate 30. porto ad gradus, quibus additis 13. graduum loco, habeo 43. ubi habeo 2. viginties ſemel, & unitas redundans, depono itaque 21. & pro reſiduo 1. ad minutas 60. porto, quæ cum 45′. conſtituunt 105″. his biſectis ſive per 2. diviſis, habes in quotiente 52′. & reſidua unitas. Pro unitate denique reſiduâ ad 16″. in ſecundarum loco, addo 60″. Summa erit 76″. divido per 2. habeo 38″. & nihil reſiduum, depono itaq; 38″. in Secundarum loco, & habeo biſectam Summam Sig. 3. gr. 21. 52′. 38″.

Monitum. Reſtat aliquid in *LOGISTICA ASTRONOMICA*, obſervandum, nimirùm quando dno dati numeri diverſas habent Denominationes, ut Sig. Gr. Min. & Sec. & dies, horæ, minutæ, ſecundæ. Hic reducas oportet horas & minuta horarum in minuta diei, quod per tabellas *Convertendi horas & minuta* horarum in minutas diei, faciendum eſt. Accipias itaq; horæ 12. 44′. 4. in minutas diei reducendæ. Hoc modo procedas, factâ converſione, ſupra habes operationis regulas.

Horæ.	′	″	‴	iv.
12	30	0		
44′	1	50	0	
4″.		0	10	0
Summa reducta	31	50	10	0.

LOGI-

LOGISTICÆ ASTRONOMICÆ

Pars Altera.

HActenus de *Logiſticâ Aſtronomicâ* in numeris naturalibus; nunc ſequitur aureus uſus Tabulæ *Logarithmorum Logiſticorum*, cujus ope, Multiplicatio, diviſio, & pars proportionalis mirâ facilitate, perficiuntur, ut infra pellucidiùs patet. In fronte Tabulæ (proximè ſub titulo Logarithmorum Logiſticorum) habes minuta gradûs. Secundò in primâ Columnâ ad latus Siniſtrum deſcendente, invenies partes minutorum, ubi fit per ſingula ſecunda proceſſus. Proximè ſub minutis motûs, in fronte Tabulæ, Horas & Minuta poſuimus procedendo per 24. Intermedia autem minuta, in Secundâ ad Siniſtrum Columnâ poſuimus. Alteræ majores Columnæ habent partium Logarithmos, adeo ut Logarithmi ſunt communes partibus & temporis & motûs, nam hæc nomina diſtinctionis gratiâ, marginales Tabulæ columnas indigitabunt, quamquàm fortaſſis non omninò propriè. Sed quoniam in aliquibus, uſus erit Logarithmorum, partibus uno gradu majoribus reſpondentium, Tabulam ulterius extendere viſum eſt ad 12′. motûs, propter parvitatem differentiarum per ſingula 2″. procedendo; & in hâc extenſione, Columna motus ſola contenti, altera quæ denominationem à tempore accepit exiſtente ſupervacua.

Tabb. f. 1.

Sect. 1. *Multiplicatio* perficitur addendo Logarithmos amborum numerorum; Summa enim erit *Logarithmus* producti.

Multiplicatio per Log. Logiſt.

Sect. 2. *Diviſio* perficitur ſubtrahendo Logarithmum diviſoris à Logarithmo dividendi; reſiduum enim erit *Logarithmus* Quoti.

Diviſio per Log. Logiſticos.

Sed quoniam rarò in *Tabulis* hiſce *Aſtronomicis* requiritur, ut ſimplex multiplicatio vel diviſio adhibeatur; ſed quatenus ad regulam proportionis conducit, ſciendum igitur eſt *Aſtrophilo*, plerumq; tacitam Additionem, vel Subductionem adhiberi, Logarithmi unius Integri, qui eſt 1000000. (quem nos ob ſimilem uſum *Radium* vocamus) & quod exinde prodit erit pars proportionalis.

Exemplum Primum.

Si grad. 1. dat. 10′. 30″: quid dabunt 16′. 15′?

Multiplica { 10′. 30″. --- log. 924304 } Adde.
{ 16 15 --- log. 943270 }

Productum 2 50 ——— 867574. Summa.

Reſpondent igitur 2′. 50″.

Exemplum Secundum.

Si 49′. 40″. dant gr. 1. quid dabunt 8′. 18″.?

Divide { 8′. 18″. ——— 914093 } Subtrahe.
{ 49 40 ——— 991791 }

Quotus 10 2. 922302. Reſiduum.

Sect. 3. Hoc modo etiam in tempore duplici methodo procedendum erit, vel Supponendo unum diem ut integrum, & utendo Columnâ, temporis horas & minuta habente; vel etiam unam horam ut unitatem ſupponendo, & itaq; pro partibus horæ prima Tabulæ Columna utendum erit.

Sect 4. Sin autem requiritur ut ambæ Columnæ adhibeantur, abſq; difficultate pergi poſſit, per regulas præcedentes, ut in hoc Exemplo. Sole in uno die per 59′. 50″. moto, quantum movebitur in horis 20. 10′ ? Addantur Logarithmi hor. 20. 10′. & 59′. 50″; Summa (Subducto Radio) erit Logarithmus 50′. 16″.

Operatio.

	20h. 10′. ——	992442	Logarithmi add.
	59 50 ——	999879	
Productum.	50 16 ——	992321.	Summa.

Sect. 5. Poterit etiam Operatio perfici in uſu *Ephemeridum*, ad motus Planetarum quocunque tempore inveniendos, & ad *Aſpectuum tempora* computanda, utendo gradibus & minutis, ac ſi eſſent horæ & minutæ, per regulam auream.

Ratio computandi tempora Aſpectuum Planetarum.

Exemplum. Anno Chriſti 1663. Martii die 27. hor. 3. ex noſtrâ illius anni *Ephemeride*, accidit ☌ ♂ ☽, & ut tempus Conjunctionis accuratè habeamus, *Synopſin Calculi* hic dabimus.

	☽.	♂		
Locus Lunæ & Martis ad diem 27	24° 30′ ♓.	26° 5′ ♓.	Locus ☽ ad diem 27—24° 30′ ♓.	
Locus Lunæ & Martis ad diem 28	8 54 ♈.	26 52. ♓.	Locus ♂ ad diem 27—26 5 ♓.	
Motus diurnus	14 24	0 47.	Diſtantia ☽ à ☌ ♂	1 35
Mot. diurn. ♂ Subtr.	0 47			
Exceſſ. ſeu ſuperatio Mot. diurn.	13 37.			

Logar. Logiſt. diſtantiæ ☌ & ☽ gr. 1 35′. —— 881933.
Log. Exceſſus motûs diurni gr. 13 37 —— 975387.
Log. Logiſt. veri temporis ☌ ♂ ☽ ho. 2. 47′. 26″. 906546.

Sect. 6. Denique ſi numerum aliquem cujus eſt uſus tabula noſtra non capit, auctis apicibus operandum erit cum gradibus & minutis, ac ſi eſſent minuta & ſecunda, & iterùm in Quotiente reſtituantur apices.

Ratio inquirendi motum ad quodcunque tempus propoſitum.

Veluti ſit inquirendus motus ☽ proximè verus ex *Ephemeridibus* noſtris deductus ad Annum Chriſti 1665. diem *Decembris* 10. Hor. 11. 40′.

	gr.	′	
Locus Lunæ verus ad Diem 10	6	14	♊.
Locus Lunæ verus ad Diem 11	19	32	♊.
Motus ☽ diurnus. ——	13	18.	

Si *Dies integer*, ſeu horæ 24. dent. gr. 13 18′, quid dabunt horæ 11 40′. ?

Exemplum ultimi generis.

Logarith. Logiſt. 13′. 18″. 934570.
Logarith. Logiſt. Ho. 11. 40′. 968673.
Logarith. Logiſt. 6′. 28″. 903243.

		gr.	′	
Locus Lunæ verus ad diem 10. Decembris in Meridie		6	14	♊.
Motus ☽ in Hor. 11. 40′. add.	gr.	6	28	
Motus Lunæ æquatus ad diem 10. Hor. 11. 40′.		12	42	♊.

Exemplis librum onerare ſuperſedeo, nec enim facilè quivis in numeris verſatus, hæc per ſe non capiet, ſimulq; uſui Tabulæ multiplicare poterit.

Logiſticæ Aſtronomicæ

FINIS.

TRIGONOMETRIA.

Liber Secundus.

In quo *TRIANGULA PLANA* & *SPHÆRICA* in breviſſimum quaſi Compendium, eximiiſq; Demonſtrationibus Geometricè præmiſſis, redduntur, adaptantur; cujus ope omnes Trigonorum Propoſitiones, in Triangulis Planis & Sphæricis, tùm Rectangulis, tùm Obliquangulis, quæ proponi poſſint, citiſſimè Reſolvuntur.

Ex Angulis Latera, vel ex Lateribus Angulos, & mixtim, in Triangulis tàm Planis quam Sphæricis, aſſequi, ſumma gloria Mathematici eſt; Sic enim Cœlum & Terras & Maria fælici & admirando calculo Menſurat. *Franc. Vieta.*

Cuncta Trigonus habet, ſatagit quæ docta Matheſis:
Ille aperit clauſum quicquid Olympus habet.

Authore

VINCENTIO WING Mathematico.

LONDINI,

Typis *J. M.* pro *G. Sawbridge*, 1668.

Liber Secundus.

IN ſecundo hoc Libro (Methodo convenienti atq; compendioſâ) traduntur neceſſaria atq; immediata illa *Trigonometriæ Elementa*, abſtractè propoſita, quæ *fundamenti locum* tenent, & quibus reliqua ſuperſtruuntur. Fateor equidem ea eruditè admodum atq; diligentèr tractata fuiſſe à noſtratium aliorumq; quam plurimis, viz. Dominis, *Briggio*, *Guntero*, *Norwoodo*, *Gellibrand*, *Petiſco*, *Oughtredo*, &c. veruntamen quia iſtorum præclariſſimorum authorum Libri in paucorum manibus teruntur, & charo veneunt, quinetiam ut habeat Lector in promptu atq; ante oculos, illa omnia quibus opus eſt, tùm ad intellectionem tùm ad praxin illorum quæ ſequuntur, operæ-pretium duxi ut exindè extraherem promptiſſimas atq; facillimas *Propoſitionum Trigonometricarum reſolutiones*, eaſdem ſuccinctè (per *novam* artis *methodum* ſcil. *Specioſam*) demonſtraturus, ſecundum doctrinam nobis traditam ab Honorabili atq; eruditiſſimo viro D^no^ *Joanne Nepero Barone de Marchiſton*, & unà cum illo, D^no^ *Norwoodo*, ſequutus præcipuè *Doctorem Scarboroughum* peritiſſimum illum *Analyſtam*, atq; de his ſcientiis meritiſſimum; nec omiſimus illorum illuſtrationem in numeris, ut tractatus ſubſequentes magis magiſque patefaciant.

CAP. I.

1. IN Mathematicarum ſcientiarum tùm contemplatione, tùm praxi, *Triangulum*, inter figuras Geometricas, primum locum ſibi meritò vendicat, quippe quod illius ope, Terram menſuramus, mare transfretamus, quantitates atq; diſtantias rerum & præcipuè glorioſiſſimarum Stellarum accipimus.

2. *Triangulum* eſt figura conſtans ex tribus angulis & tribus lateribus, quorum tria nota eſſe debent, appellantur autem Δεδόμενα, & ſic notantur (I.) iiſq; Invenitur quodlibet trium reliquorum quæ ζητούμενα appellantur atque ſic notantur (:i) — *Definitio Trianguli. Δεδόμενα & ζητούμενα.*

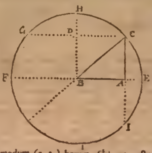
3. *Triangulum* in plano eſt *rectilineum*, in *Sphæra* circulare.

4. Rurſus *Triangulum* rectilineum eſt vel *Rectangulum*, vel *Obliquangulum*. — *Diviſio trianguli ſpecialis in planum & Sphæricum, & in Rectangulum & Obliquangulum.*

5. *Triangulum rectilineum Rectangulum*, de quo primò loquimur, notatur literis A B C, atq; ejus latera ad Circulum relata, inſcribuntur in eo, vel totalitèr, vel partialitèr.

6. Totalitèr, quando latus ſubtendens angulum rectum, ſit circuli Radius, atq; tum omnia latera poſſint nominari *Sinus* (quod nomen artis eſt, atq; ab *Arabum gente* mutuatum) nempe B C, ſubtendens angulum rectum (*Sinus totus*) reliqua duo, angulum rectum ambientia, *Sinus* & *Co-ſinus* appellantur, quia unum eorum eſt complementum alterius uſq; ad *Quadrantem*. — *Sinus quid Co-ſinus.*

7. *Sinus* in genere eſt vel rectus vel verſus.



8. *Sinus Rectus* in genere proximo eſt ſemper ſemiſſis Chordæ duplum arcum Subtendentis, ut videre eſt in lateribus auctis, atq; lineis punctatis, ut in Figura.

Sinus verſus quid.

9. *Sinus verſus* eſt perpendicularis ad Sinum rectum, à termino arcûs, qui ab Antiquis vocatur *Sagitta.*

10. Ut in Triangulo B A C, B C eſt *Radius* ſive *Sinus totus*, C A *Sinus ſimpliciter*, ſive primus, (ſecundum veteres ſcriptores) B A·D C erit Complementum, appellaturq; *Co-ſinus*, atq; notari ſolet in hunc modum (c. 2.) horum Sinuum rectorum utrumq; eſt Semiſſis Chordæ duplum arcum ſubtendentis uti priùs diximus, atq; ex figura eſt manifeſtum. Quod attinet ad Sinus verſos, nempè A E, F A, illorum in hoc libro uſum nullum habemus.

11. Hic notandum, Sinum unumquemq; (nempe Rectum) eſſe etiam & Sinum æquè complementi illius arcûs ad Semicirculum, nimirùm C A eſt Sinus arcûs F G H C. Hîc loco anguli obtuſi cujuſlibet (puta C B F.) qui ſemper excedit 90. gradus, accipimus Complementum ejus ad Semicirculum, ſive 180. grad. nempe angulum acutum C B E, qui à gradibus 90. neceſſariò deficit; atq; inde fit, ut Canon Sinuum nunquam ſupra 90. gradus aſcenderit.

12. *Rectangulum Triangulum* in Circulo partialitèr inſcribi dicitur, quando ſi ad circulum applicatum fuerit; laterum angulum rectum continentium, unum fit *Radius*, quo caſu, alterum tangens (à circulo tangendo) vocabitur, atq; Hypothenuſa angulum rectum ſubtendens *Secans* appellabitur, nempè quia circumferentiam ſecat atq; ultra eam extenditur.

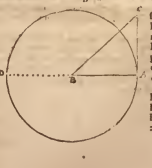
Tangens quid.

13. *Tangens* itaq; arcûs ſive anguli definiri poſſit ut ſit linea recta perpendicularis ad Radium, circumferentiam tangens, atq; pertinet, tam ad complementum iſtius arcûs ad Semicirculum, quam ad ipſum arcum.

Secans quid.

14. *Secans* eſt linea recta à centro circuli ducta, per circumferentiam Circuli ad extremitatem uſq; tangentis; ea autem nobis haud erit uſui.

15. In Diagrammate C A eſt Tangens tam anguli D B C quam C B A & ſimiliter B C eſt utriuſq; *Secans.*



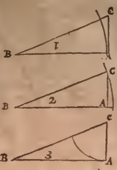
16. Eorum omnium quæ præmiſſa ſunt cauſa, obſervandum, quodvis latus pro Radio poni poſſe, atq; inde ratio petenda eſt proportionis cujuſlibet ita ordinandæ, ut Radius in primo loco poni poſſit Subtractionis evitandæ, & ſumendi *Arithmetici complementi* Cauſâ.

t. C A, ſec. B C, (1) :: ſ. C A Rad. B C, (2) :: Rad. C A, ſec. B C, (3.) iterum, t. C A, Rad. B. A. (1.) :: s. C A, s. B A (2.) :: Rad. C A, t B A, (3.)

17. Hinc

17. Hinc manifeſtum eſt, quod ut Sinus anguli ad Radium, ita Radius, ad Coſecantem ejuſdem anguli, atq; ita Tangens ad Secantem, & converſim.

18. Liquet etiam, quod ut Tangens arcûs ad Radium, ita Radius, ad Cotangentem; ita etiam & Sinus ad Coſinum ejuſdem arcûs, & contra. Dein & hoc addamus Corollarium, nempe Radium eſſe medium proportionale inter Sinum & Coſecantem cujuſlibet arcûs, & ſimiliter inter Tangentem & Cotangentem.



CAP. II.

1. HActenùs de Triangulis rectangulis loquuti ſumus, jam proximo in loco progredimur ad affectiones quaſdam, quæ omnibus planis Triangulis in genere aptentur, quamvis erant principalitèr ordinatæ ad ſolutionem triangulorum obliquangulorum in ſpecie, eas generatim trademus & particulatim applicabimus.

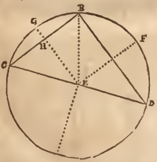
Affectiones omnium Planorum Triangulorum in genere.

2. *In omnibus planis Triangulis, latera ſunt proportionalia Sinubus Oppoſitorum angulorum, & contra.*

Demonſtratio.

Eſto B C D Triangulum in circulo inſcriptum; à centro E. cadant perpendiculares E H, E G, E F, quæ debent biſecare Chordas unà & arcus reſpondentes *(per 6. 3. Elem.)* ducatur ſimiliter B E Radius. Jam quoniam angulus B E G = B D C angulo *(per 20. 3. Elem)* erunt igitur Semiſſes laterum oppoſitorum angulorum Sinus.

Ergò ut B C. C D :: H B : E D. Nempe ut totum ad totum, ita ſemiſſis ad ſemiſſem.

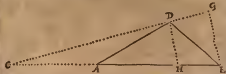


3. *In omnibus planis Triangulis. Ut Summa duorum laterum, ad eorundem differentiam, ita Tangens ſemiſummæ oppoſitorum angulorum, ad Tangentem eorundem ſemidifferentiæ.*

Demonſtratio.

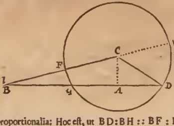
Eſto nimirum Triangulum A D E (in Diagrammate adjuncto) in quo nota ſint A D. A E latera unà cum angulo ad A. Producatur A E verſus C, Ita ut ſit C A = A D, atq; abſcindatur A H = A D, producatur C D verſus G. donec G E ſtat parallela ad D H. Erunt jam in Triangulo A D H, D = H, & in Triangulo C A D, C = D, ergò angulus C D H = H + C, & ergò

D C D H



C D H eſt rectu: (per 32 1. Elem.) & quia G E & D H ſunt parallelæ, ergò angulus GEH-DHC. per eandem 29. 1. præterea angulus D H A=H D E + H E D (per 32.1.) addatur A D H utriq; parti æquationis, erunt A H D + A D H = A D E + A E D. ergò A H D = A E D + A D E, jam ergò (per 2 6.) ut C E ſumma laterum ad H E eorundem differentiam, ita C D Tangens ſemiſummæ oppoſitorum angulorum, ad D G. tangentem ſemidifferentiæ eorundem. Quod erat demonſtrandum.

4. *In quolibet Triangulo, ut Baſis ad ſummam laterum, ita differentia laterum, ad differentiam ſegmentorum Baſis.*



Declaratio.

In Triangulo BCD, BD eſt Baſis, B H Summa laterum, B F differentia laterum, & B G differentia ſegmentorum baſis, ſcilicet quia C A perpendicularis biſecat G D, quoniam igitur (per 36. 3. Eucl.) B F x B H = B G x B D erunt proportionalia: Hoc eſt, ut B D : B H :: B F : B G. Quod erat demonſtrandum.

5. His jactis fundamentis, Quæſtiones omnes planorum Triangulorum nullo negotio abſolvuntur.

Notatio hujus Trianguli. Triangulum Rectangulum literis A B C ſignabo- nempe B. ad Angulum rectum, C. ad *Cathetum*, i. e. *perpendicularem*, A ad *Baſin*, ita A B repræſentabit Baſin, C B *Cathetum*, A C *Hypotenuſam*, dextro artificio; atq; ut confuſionem in operando evitemus, data notentur tali lineâ (1.) & Quæſita tribus punctis in Angulo ad hunc modum ⋗ pro latere autem ita -:-::

Orthogonii Diatypoſis,

In quâ quilibet Caſus ſtatim agnoſcitur.



Data

	Data.			Quæſita.		Anologia.	Typus Caſuum ſeu Problematum.
		Latera	Anguli	Latera	Anguli		
1	Datis Angulis & Crure, quæritur Crus reliquum.	B A B C	Conter. { A C	B C B A	} Oppoſit.	R : t. A :: B A : B C. R : t. C :: B C : B A.	
2	Datis Hypotenuſâ & Angulis, quæritur Crus utrumlibet.	A C A C	A C	C B A B	} Oppoſit.	R : s. A :: A C : C B. R : s. C :: A C : B A.	
3	Datis Angulis & Crure, quæritur Hypotenuſa.	B A B C	Oppoſit. { C A	A C A C		s. C : R :: A B . A C. s. A : R :: B C . A C.	
4	Datis Cruribus, quæritur Angulus [illegible]	A B B C			C A	B C : B A :: R : t. C. A B : B C :: R : t. A.	
5	Datis [illegible] po-tenuſâ, qua[illegible] An-gulus alteruter.	A B : A C A C : B C			Oppoſit. { C A	A C : A B :: R : s. C. A G : B C :: R : s. A.	
6	Datis Cruribus, quæritur Hypotenuſa.	A B : B C		A C		Duplici operatione perficitur. 1. B A : B C :: R : t. A. 2. s. A : R :: B C : A C. Vel unâ operatione per Chiliades. Log. B A x 2. + Log. B C x 2. = Log. A C. (divided by 2)	
7	Datis Hypotenuſâ & Crure, quæritur Crus reliquum.	A B : A C vel A C : B C		B C A B		Duplici operatione reſolvi poteſt; ſed unicâ magis expeditè per Chiliades. Log. A B + A C plus. Log. A C - A B diviſ. per 2. = Log. B C. Vide Arith. Log. D. Brigii, Cap. 16. 17.	

Illuſtrationes horum Problematum per numeros Logarithmicos.

Problema 1.

In Triangulo Rectangulo A B C quæritur Crus B C.

E datis { Crure A B 1123. 7943. / Angulo C A B gr. 28 19′ 48″. } Termini Rationis. R : t. A :: A B : B C.

Illuſtratio per numeros.

Propor.			
Radius	gr. 90	0′. 0″.	10. 00000000.
Tangens B A C	28	19. 48.	9 73168554.
Crus B A		1123. 7943.	3 05068681.
Crus B C		605. 8601.	2 78237235.



Probl. 2.

In Triangulo Rectangulo A B C quæritur Crus B A.

E datis { Hypotenuſâ A C 1276. 7067. } Termini Rationis.
{ Angulo C gr. 61. 40′. 12″. } R : s. A C B :: A C : A B.

Illuſtratio per numeros.

Propor.	Radius	gr. 90 0′ 0″.	10. 00000000.
	Sinus A C B	gr. 61. 40. 12.	9 94459567.
	Hypotenuſa A C	1276. 7067.	3 10609114.
	Crus A B	1123. 7943.	3 05068681.



Probl. 3.

In Triangulo Rectangulo A B C quæritur Hypotenuſa A C.

E datis { Crure A B 1123. 7943. } Termini Rationis.
{ Angulo B C A gr. 61. 40′. 12″. } s. A C B : R :: B A : A C.

Illuſtratio Arithmetica.

Propor.	Sinus Ang. BCA	gr. 61. 40′. 12″.	9. 94459567.
	Radius	90.	10. 00000000.
	Crus A B	1123. 7943.	3. 05068681.
	Hypotenuſa. A C	1276. 7067.	3. 10609114.



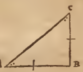
Probl. 4.

In Triangulo Rectangulo A B C. quæritur B A C.

E datis Cruribus { A B 1123. 7943. } Termini Rationis.
{ B C 605. 8601. } A B : B C :: R : t. B A C.

Illuſtratio per numeros.

Propor.	Crus A B	1123. 7943.	3. 05068681.
	Crus B C	605. 8601.	2. 78237235.
	Radius gr.	90. 0′. 0″.	10. 00000000.
	Tangens B A C	28. 19. 48.	9. 73168554.



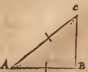
Probl. 5.

In Triangulo Rectangulo A B C quæritur Angulus A C B.

E datis { Crure A B 1123. 7943. } Termini Rationis.
{ Hypotenuſa A C 1276. 7067. } B C : B A :: R : s. A C B.

Illuſtratio per numeros.

Propor.	Hypotenuſa B C	1276. 7067.	3. 10609114.
	Crus A B	1123. 7643.	3. 05068681.
	Radius gr.	90.	10. 00000000.
	Sinus Anguli ACB.	61. 40′. 12″.	9. 94459567.



Probl.

Probl. 6.

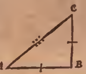
In Triangulo Rectangulo A B C quæritur Hypotenuſa A C.

Termini Rationis.

E datis Cruribus { A B. 1123. 7943. } 1. AB : BC :: R : t. BAC.
{ B C. 605. 8601. } 2. t. BAC : R :: BC : AC.

Illuſtratio Arithmetica.

Propor.	Crus A B	1123. 7943.	3. 05068681.
	Crus B C	605. 8601.	2. 78237235.
	Radius	gr. 90.	10. 00000000.
	Tang. Ang. BAC	28. 19′. 48″.	9. 73168554.
Propor.	Sinus Anguli BAC	28. 19. 48.	9. 67628121.
	Radius	90.	10. 00000000.
	Crus B C	605. 8601.	2. 78237235.
	Hypotenuſa A C	1276. 7067.	3. 10609114.



Probl. 7.

In Triangulo Rectangu'o A B C quæritur Crus B C.

Termini Rationis.

E datis { Hypotenuſa A C 1276. 7067. } 1. AC : BA :: R : s. ACB.
{ Crure A B 1123. 7943. } 2. R : s. BAC :: AC : BC.

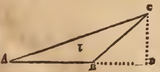
Poteſt etiam hoc Problema expeditiùs reſolvi, idq; unicâ operatione, in hunc modum. { Log. A C + A B plus. Log. A C. -- A B. diviſ. per 2. = Log. B C.

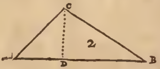
Illuſtratio Arithmetica.

Hypotenuſa A C	1276. 7067.	Sum.	2400. 5010.	3 38630189.
Crus A B	1123. 7943	Differ.	152. 9124.	2 18444270.
		Aggregat.		5. 56474459.
Crus quæſitum B C	605. 8601.	½ Aggreg.		2. 78237229.

In planis Triangulis Obliquangulis.

6. Hoc Triangulum etiam notare ſoleo cum literis A B C, & ſi Angulus ſit datus, unà cum uno Laterum continentium ſignetur ille Angulus cum A, & latus eum A C, ita ut Perpendicularis demiſſa à C diſtinguat Baſes minorum Triangulorum. Notatio Triangulorum Plan. Obliquangulorum.





In primo Diagrammate Perpendicularis cadit extra Triangulum, quod ſemper fiet quando Angulus B. eſt obtuſus, ſive etiam A. Sin autem acuti

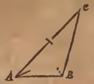
fuerint,

fuerint, cadet intra Triangulum, ut in ſecundo Schemate, adeo ut in primo D A-B D = A B. In ſecundo D A + B D = A B.

7. Primò, *Datis duobus Lateribus, unà cum Angulo oppoſito ad unum illorum, invenire Angulum oppoſitum ad illorum alterum, & contra.*

Ut A C, ad Sinum oppoſiti anguli B; Ita C B, ad Sinum oppoſiti Anguli A.

Illuſtratio per numeros, in hoc Triangulo A B C.



Propor.			
	Latus B C	865. 1765.	2. 93710471.
	Sinus Anguli A gr.	37. 26. 43.	9. 78390603.
	Latus A C	1276. 7067.	3. 10609134.
			12. 88999717.
	Sinus Ang. ABC gr.	116.12.24″.	9. 95289246.

8. Hic notandum quod ſi Angulus datus ſit obtuſus, latus oppoſitum majus erit utrovis reliquorum, & reliqui duo Anguli erunt acuti.

Sin autem Angulus datus ſit acutus, in dubio erit an Angulus oppoſitus ad majus Latus ſit obtuſus an accutus, id certum eſt illum indè emerſurum verum Sinum quarti proportionalis, ſiquidem idem eſt Sinus Anguli, atq; ejus Complementi, uti anteà planum fecimus.

9. Quo igitur certiores ſimus de quantitate Anguli, oportet ut conferamus Latus maximum cum Latere minimo, aut medio; dein accipiamus ſummam atq; differentiam, quod ſi ſemiſſis Logarithmorum utriuſq; Lateris æqualis fuerit Logarithmo tertii Lateris reſidui, tum Angulus oppoſitus ad maximum Latus erit Rectus, ſin major, obtuſus, ſin minor erit acutus.

10. Secundò. *Datis duobus Lateribus, unà cum Angulo comprehenſo, invenire utrumq; reliquorum Angulorum.*

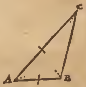
A C + A B : A C – A B :: t. C + B : t. C. + B. &c. viz.

Ut ſumma laterum ad differentiam Laterum, ita tangens ſemiſſis ſummæ Angulorum oppoſitorum, ad tangentem ſemiſſis differentiæ.

In Triangulo Obliquangulo A B C quæritur Angulus alteruter ad B vel C.

E datis Lateribus { A C 1276. 7067.
A B 631. 5525.
Angulo B A C gr. 37. 26′. 43″.

Illuſtratio per numeros.



Latus A C	1276. 7067.
Latus A B	631. 5525.
Sum. Laterum.	1908. 2592.
Differentia Laterum	645. 1542.
Angulus comprehenſus gr.	37 26′. 43″.
Summa reliquorum gr.	142. 33. 17.
Semiſſis Summæ	71. 16 38.

Propor.			
	Summa Laterum	1908. 2592.	3. 28063736.
	Differentia Laterum	645. 1542.	2. 80966353.
	Tangens ½ Summæ ang. oppo:t. gr.	71. 16′ 38″.	10. 46989706.
			13. 27956059.
	Tangens ½ differentiæ	44 55 44.	9. 9989²323.

Illi ½ Summæ Angulorum gr. 7ι. 16′. 38″. } { gr. 71 16′ 38″.
Si addatur ½ differentiæ gr. 44 55 44. } { Sin Subtrahantur 44 55 44.
Conflatur Ang. obtuſ. ABC gr. 116 12′ 22″. } { Reſtat acutus ACB26 20 54.

Aliter.

Aliter.

1. Ut Latus minus, ad Latus majus, ita Radius, ad Tangentem Arcûs, à quo abjectis 45. gradibus, reſtat arcus alter.

2. Ut Tangens gr. 45. ad Tangentem arcus jam inventi, Ita Tangens ſemiſſis Angulorum oppoſitorum, ad Tangentem ſemiſſis differentiæ.

Robertus Anderſonus rem ita demonſtrat.

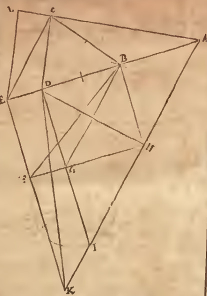
Conſtructio. In Diagrammate ſit E A (= E K) Summa laterum, E D differentia, E B (= F H) Latus majus, C B (= B A = B C = B H = H G) Latus minus, & E B C Angulus datus.

Analogia Prima.

Ut B H : ad H F :: ita Radius : ad Tangentem F B H. Tunc F B H − G B H = F B G = E K D.

Demonſtratio.

Nam ut H B : H A (= H D) :: H F : H K. Ergò Trianguli F B H & K D H ſunt æquianguli. Si verò F B H − G B H, & K D H − I D H, F B G = K D I, Sed K D I = E K D, ergò F B G = E K D.



Analogia Secunda.

t. E K A : t. E K D :: t. L E A t. L E C.

Demonſtratio.

R : K E :: t. E K A : E A. Et R : K E :: t. E K D :: E A : Ergò, t. E K A : t. E K D :: E A : E D. Sed E A : E D :: t. L E A : t. L E C. Ergò t. E K A : t. E K D :: t. L E A : t. L E C.

Illuſtratio per numeros.

Latus minus	631 5525.	2. 800409.
Latus majus	1276 7067.	13. 106091.
Tang.	gr. 63 40′. 47″.	10. 305682.
	gr. 45 Subtr.	
Reſtant	18 40 47.	

Tang.

Tang. gr. 45.	10:
Tang. gr. 18 40′. 47″.	9. 529028.
Tang. gr. 71 16 38.	10. 469897.
Tang. gr. 44 55 44 ut ante.	9. 998925.

11. Tertiò. *Datis tribus Lateribus Trianguli Obliquanguli, invenire Angulum quemcunque.*

Res hæc duabus operationibus perficitur.

Analogia Prima.

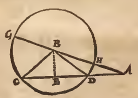
Ut latus maximum C A, ad ſummam reliquorum A B, B C, ita differentia eorundem ad numerum, qui ſi ſubtrahatur à tota Baſi verſus principium lateris medii C, Perpendicularis cadet in partem reliquam, eamq; biſecabit in E.

Analogia Secunda.

C E B eſt Rectangulum ad E. Dantur C B, E C, & quæritur Ang. C.
Ut C B : R :: C E :: c s. C.

Illuſtratio per numeros.

1.	Latus maximum A C	1276. 7067.	3. 10609114.
	Summa reliquorum A B, B C	1496. 7290.	3. 17514317.
	Differ. reliquorum H A	233. 6240.	2. 36851745.
			5. 54366062.
	Dif. Segmentorum Baſis A D	273. 8858.	2. 43756948.
	Differentia hujus & Baſis C D		1002. 8209.
	Cujus Semiſſis C E vel D E		501. 4104.
	Erit itaq; A E		775. 2962.
2.	Hypotenuſa C B	631. 5525.	2. 80040946.
	Crus C E	501. 4104.	2. 70019334.
	Radius		10. 00000000.
	Sinus Anguli C B E gr. 52. 33′ 16″.		9. 89978388.
	Compl. E C B gr. 37. 26′. 44″.		



Idem labor repetendus eſt in Triangulo A E B, ut Anguli innoteſcant reliqui.

12. Quod ſi placuerit conſulere *D. Briggii Arith. Logar.* Cap. 16. idem unicâ operatione perficere valebis, juxta Regulam ibidem propoſitam, viz. De dimidio collectorum laterum, latera ſigillatim ſubducantur, & ſumma Logarithmorum ſemiſſis ſummæ laterum & differentiæ lateris Angulum quæſitum ſubtendentis, auferatur è Summâ Logarithmorum reliquarum differentiarum & duplicati Radii, ſemiſſis reliqui erit Logarithmus Tangentis Semiſſis Anguli quæſiti.

13. Quartò.

13. Quartò. *Datis Anguli & Latere, quæritur Latus alterutrum reliquorum.*

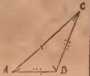
In Triangulo Obliquangulo A B C quæritur Latus B C.

E datis { Anguli { B A C gr. 37. 26′ 43″. / A C B gr. 26 20 53. / A B C gr. 116 12 23. } Latere A C 1276. 7067. }

{ Termini Rationis. / s. B : Oppoſ. A C :: s. A : Oppoſ. B C. pro A B. / s. A : B C :: s. C : A B. }

Illuſtratio per numeros. Pro B C.

Sinus Anguli ABC gr. 65. 47′. 37″.		9. 95289368.
Latus A C	1276. 7067.	3. 10609114.
Sinus Anguli BAC gr. 37. 26. 43.		9. 78390730.
		12. 88999844.
Latus B C 865. 1765.		2. 93710476.

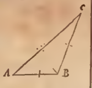


14. Quintò. *Datis duobus Lateribus cum Angulo ab iiſdem comprehenſo quæritur Latus reliquum.*

In Triangulo Obliquangulo A B C quæritur Latus A C

E datis { Lateribus { B C 865. 1765. / A B 631. 5525. } Angulo A B C gr. 116. 12′. 23″. }

Primò inveniantur reliqui Anguli per 10. cum acquiſitis Angulis, dabitur Latus quæſitum per 13. Exemplis non erit opus.



CAP. III.

De Triangulis Sphæricis.

1. *TRiangulum Sphæricum eſt Figura deſcripta ſuper Sphæricam Superficiem, conſtans ex tribus arcubus maximorum Sphæræ circulorum, quorum unumquodq; Semicirculo eſt minus.* Definitio Triangulorum Sphæricorum, & eorum Affectiones inter ſe.

2. *Circuli autem Sphæræ maximi ſunt illi, qui eodem communi centro gaudent, quo & Sphæra ipſa; atq; dividit alter alterum, æque ac Sphæram in duas æquales partes, ſive medietates. Hinc,*

3. *Minores Circuli ſunt illi, qui ſinguli, peculiaribus ſuis donantur centris, atq; Sphæram dividunt inæqualitèr. (Theodoſ. Prop. 6. & 11. Lib. 1.)*

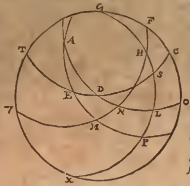
4. *Circulus magnus pertranſeuns Polos alterius magni circuli ſecat eum, atq; ab eo ſecatur ad Angulos rectos, & è contra, quia,*

5. *Angulus Sphæricus menſuratur ab arcu circuli magni ab angularibus punctis inter latera continuata ad Quadrantes deſcripti, & contra, ideoq;.*

6. *Latera Sphæricorum Triangulorum converti poſſint in angulos, & contra, ſumptis nimirum laterum maximorum aut angulorum maximorum, complementis ad Semicirculum, in quâlibet converſione: hoc quidem demonſtrare erit ſummè neceſſarium, quippe quod in Trigonometriâ venit in uſum frequentem.*

Eſto G F O X T Colurus Æquinoctialis, A D O arcus æquinoctialis, cujus polus eſt F, ſit A E Arcus Eclipticus, cujus polus eſt H, & E D arcus Horizontalis, cujus polus G, tum quidem ad centrum A & quadrantalem diſtantiam deſcribatur MN, nempe menſura anguli A, ſimiliter O C, Expoſitio.

E menſura



menſura D, & deniq; P S menſura complementi E. In eodem Sphærico Triangulo A E D. jam verò quoniam hi arcus M N, P L, O C 90 gradus diſtant ab A, E, D, certè protractis iis ſinguli pertranſibunt duos Polos dictorum circulorum : tum F N = M H, à quibus duobus ſi ſubtrahatur N H reſtabit M N = H F, & propter eandem rationem C O = G F, & P S = G H &c.

7. *Tria latera cujuſcunq; Sphærici Trianguli, minora ſunt duobus Semicirculis.*

Theoremata generalia.

8. *Omnia Sphærica Triangula habent tres angulos majores duobus rectis, unde apparet ex duobus datis non dari & tertium, quod fit in Triangulis rectilineis.*

9. *Quod ſi arcus magni circuli ſecuerit arcum alterius magni circuli, aut duos angulos rectos efficiet, aut duos angulos æquales duobus rectis.*

10. *Si duo arcus magnorum circulorum, ſe mutuò ſecuerint, anguli verticales, ſive ad crucem erunt æquales.*

11. *Si duo latera Sphærici Trianguli continuata fuerint, rurſus ſe mutuò interſecabunt per Semicirculum, & efficient angulum æqualem priori angulo oppoſito.*

12. *In Triangulo Sphærico Rectangulo latera ſunt ejuſdem prorſus rationis cum angulis oppoſitis.*

13. *In Triangulo Sphærico rectangulo, ſi latus unum ſit quadrans, Hypothenuſa erit quadrans, Si ambo fuerint ejuſdem affectionis Baſis erit quadrante minor, Si diverſarum affectionum Baſis erit quadrante major, & contra.*

14. *In Triangulis Sphæricis Obliquangulis, Si anguli ad baſin fuerint ejuſdem affectionis, perpendicularis demiſſa à tertio angulo cadet intra, Sin autem diverſæ, cadet extra.*

Expoſitis his generalibus Triangulorum Sphæricorum affectionibus, ad particularem eorundem conſiderationem mox in ſequenti Capite tranſibimus.

CAP. IV.

Prop. I.

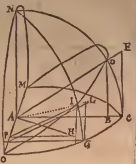
IN omnibus ſphæricis Triangulis rectangulis eundem acutum Angulum ad Baſin habentibus.

Sinus Hypothenuſarum ſunt proportionales ſinubus Perpendicularium reſpondentium.

Declaratio.

Eſto M C O N Sphæræ quadrans, M C O ſemiſſis plani Æquinoctialis, cujus polus N, O I D M ſemiſſis plani Eclipticæ, N D C Coluri Solſtitiorum quadrans, M N O ſemiſſis plani Coluri Æquinoctiorum, N I G quadrans alterius cujuſcunque meridiani, jam quoniam Coluri ſecant Æquinoctialem ad angulos

angulos rectos, Eclipticam verò ad obliquos, erunt in hoc Sphæræ quadrante duo Triangula Sphærica rectangula, viz. D O C & I O G, quorum Hypothenuſæ ſunt D O & I O, Catheti D C, I G, Baſes autem O C & O G, habent etiam ambo hæc Triangula unum atq; eundem communem angulum ad O. Sunt autem Sinus Hypothenuſarum A D, viz. Sinus totus, ſive Radius, & Sinus P I, perpendicularium Sinus ſunt D B, I H.



Quoniam igitùr Triangula B A D & P H I ſunt ſimilia (nempe quia in idem planum ſc. Æquinoctialis cadunt perpendicularitèr D B & I H, tum etiam quia D A atq; I P ſunt parallelæ, ſiquidem in eodem plano, viz. Eclipticæ, & in eandem diametrum perpendicularitèr cadunt) erunt igitùr Triangula P I H atq; A D B æquiangula, hinc,

s. A D : s. P I :: s. D B : s. I H. & contra.

Ideoq; in Triangulo O I G.

R : s. O I :: s. I O G : I G.

Ut Radius eſt ad Hypothenuſam, ita Sinus cujuſlibet alterius anguli ad Sinum lateris ad angulum illum oppoſiti.

Prop. 2.

In Triangulis Sphæricis Rectangulis eundem acutum angulum ad Baſin habentibus.

Sinus Baſium, Tangentibus ſuorum Perpendiculorum ſunt proportionales; & contra.

Declaratio.

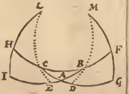
In Schemate præcedente, & in iiſdem Triangulis D O C & I O G, A C & F G ſunt ſinus Baſium, C E & G L ſunt Perpendiculorum Tangentes, quia Triangula A E C & F L G ſunt ſimilia, ut jam ante demonſtratum eſt, Ergò, s. A C : s. F G :: t. E C : t. L G. & contra. Item R : s. O G :: t. I O G : t. I G.

In omnibus Sphæricis Triangulis Rectangulis, ut *Radius*, ad *Sinum lateris* dati, ita *tangens anguli ad datum latus contermini*, *ad tangentem lateris oppoſiti.*

Prop. 3.

Si à Sphærici Trianguli duobus angulis, perpendiculares dimittantur ad latera oppoſita, Sinus angulorum & perpendicularium ſunt directè proportionales, nempè,

Expoſitio.



In Triangulo A B C, à Polis L & M cadant perpendiculares C E atq; B D ſuper latera C A atq; B A continuata ad Quadrantes.

Tum per Corollarium primi.

R : s. C B :: s. C B E : s. C E. item,

R : s. C B :: s. B C D : s. B D. Ergò per 11. 5. s. B : s. C E :: s. C : s. B D.

Prop. 4.

Si duo arcus perpendiculares ſubtendant æquales angulos, Sinus Cathetorum Proportionales erunt Sinubus Hypotenuſarum, & contra.

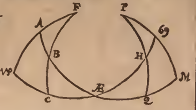
Expoſitio.

Eſto B Æ C = H Æ Q ducantur perpendiculares B C atq; H Q à polis P & F.

s. ♋ M: s. ♋ Æ :: s. H Q: s. H Æ. s. A ♑: s. A Æ :: s. B C: s. B Æ.

Ergò.

s. H Q : s. H Æ :: s. B C: s. B Æ.

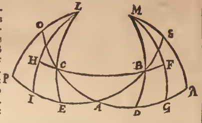


Prop. 5.

In quolibet Sphærico Triangulo Sinus laterum ſunt proportionales Sinubus oppoſitorum ſuorum angulorum.

Expoſitio.

In Triangulo Obliquangulo C B A, ut Sinus anguli C, ad Sinum anguli B, ita Sinus lateris C A ad Sinum lateris B A, nempè quia, s. H I: s. F G :: s. C E. s. B D. p. 3. Et etiam s. C A. s. B A :: s. C E. s. B D. p. 4. Ergò s. H I. s. C A :: s. F. G. s. B A, vel s. B: s. C A :: s. C : s. B A.



CAP. V.

DEmonſtrationes præmiſſæ ſufficiant nobis (& noſtro propoſito) qui nobiliſſimum virum Dominum *Johannem Naiperum* Baronem de *Merchiſton* tanquam ducem atq; præmonſtratorem viæ, ejuſq; methodum ſequuti ſumus, quam quidem *Vlacbus* levi manu tetigit, *Norwoodus* autem noſter, Trigonometra Celeberrimus, ſtrictiùs examinavit atq; fuſiùs expoſuit. Quoniam autem Dr. *Scarborougbus* vir multis nominibus inſignis, integræ Sphæricæ Trigonometriæ miram facilitatem atq; jucunditatem conciliavit, illamq; (ablegatis tædioſis demonſtrationibus & caſibus, iſtis, quibus memoria immanè oneratur) in unum quaſi manipulum collegit, paginam unam aut alteram addam etiam & ego, ad eandem Triangulorum doctrinam facilitandam.

In Triangulis Sphæricis Rectangulis.

Quinque Partes circulares, præter Angulum Rectum, & Quadrantale latus.

1. Dantur quinque partes circulares (præter angulum rectum & latus Quadrantale, quæ inter circulares non numerantur, & de quibus ſtatim dicemus) quarum tres, quæ remotiſſimè ponuntur ab angulo recto, ut hic vel latere quadrantali ut infra, Complementa vocat; nimirùm ut commodiùs aptentur duabus univerſalibus Propoſitionibus, quæ etiam & in unam compingi

pingi poſſint. Partes autem ſunt, Complementum B, Complementum C, Complementum B C, Latus B A, Latus C A.

2. Quia duo termini dantur ad inveniendum tertium, conſiderentur iſti termini ſecundum partes ſuas circulares, atq; unus illorum erit pars media,



inter ejus extremas, notas ab ipſâ poſitione terminorum, quod ſi hæc media pars immediatè fuerit conjuncta unà cum ejus extremis, partes illas appellabis Extremas conjunctas, ut A C. C. B C. Quod ſi partes aliæ, quæ in quæſtionem non veniunt, intervenerint atq; illas partes diſjunxerint, hæ partes appellandæ ſunt Extremæ diſjunctæ, ut A C. C. B, hic B utrinq; disjungitur à lateribus B C & B A.

Ita fit in B C, B A, C A, ubi B C eſt pars media, C A & B A Extremæ diſjunctæ: notandum autem eſt B A & C A partes eſſe conjunctas, quia angulus rectus inter partes circulares non numeratur, ut ante diximus. Pars media quæ? Partes extremæ?

3. Antequam ſolutionem hujuſmodi Triangulorum aggrediamur, diſcernenda eſt pars media ab extremis, & utrùm extremæ ſint conjunctæ vel diſjunctæ, quòd ſi termini omnes uniantur, terminus medius eſt *Pars media conjuncta*, atq; extremi, *extremæ partes conjunctæ*. Si rurſus quælibet pars diſjungatur, partes illæ conſideratæ diſjunguntur: pars illa quæ per ſe poſita, ſeparatur utrinq;, eſt pars media diſjuncta, & extremæ partes ſunt extremæ partes diſjunctæ. Utrum Partes extremæ ſint conjunctæ vel diſjunctæ?

PROPOSITIO CATHOLICA.

4. *Sinus partis mediæ atq; Radius, ſunt reciprocè proportionales cum Tangentibus partium Extremarum conjunctarum, & Coſinubus partium Extremarum disjunctarum.* Propoſitio Catholica.

Nempe ut *Radius* ad *Tangentem* unius Partium extremarum conjunctarum, ita *Tangens* alterius, ad *Sinum* Partis mediæ.

Ut Radius ad Co-ſinum unius Partium extremarum diſjunctarum, ita Coſinus alterius, ad Sinum Partis mediæ.

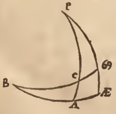
5. Ergò ſi *Pars media* quæratur, *Radius* in primo loco ponitur, ſi extremarum quælibet, altera eſt in primo loco ponenda.

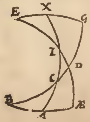
6. Hæc Propoſitio demonſtratur per inductionem in ſingulis caſibus, atq; cum iis coincidit in caſibus terminorum extremorum diſjunctorum. In conjunctis inter nos & illos non convenit, nempe ubi dicunt illi, *Ut Radius ad Tangentem*, nos dicimus, *Ut Co-tangens ad Radium*, & inter ſe & contra, ut antea planum fecimus.

Notandum, quod ubi acciderit ut Complementum in Propoſitione concurrat cum Complemento in partibus circularibus, ſumendus ſit vel Sinus ipſe, vel Tangens ipſa, quia

C S. ex C S. = S. Et C t ex C t = t.

Notandum, quod C A eſt *Cathetus* vel *Perpendiculum*, B A Baſes, B C *Hypotenuſa*, *Angulus ad Cathetum*, B Angulus ad Baſin.





Typus

Typus Triangulorum Sphæricorum Rectangulorum,

In quo quilibet Caſus promptè dignoſcitur.

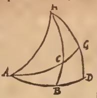
Typus Caſuum Triang. Sphæric. Rectang.

DATA.	Data Latera Anguli.	Quæſita. Latera Ang.	Analogia.	Demonſtr.
1. Datis Hypotenuſâ & Crure, quæritur Crus reliquum.	B A B C vel C A	C A B A	B A cs. CA cs : R :: cs. BC. CA cs. BA Extrem. partes disjunct.	Per Prop. 1.
2. Datis Hypotenuſâ & Angulo ipſi conter-mino, quæritur Crus angulo dato oppo-ſitum.	B C	BC A CB A	sB : s : CA R : s. BC :: s. C : s. BA Extremæ disjunctæ.	Per Prop. 5.
3. Datis Angulis ob-liquis, quæritur Crus utrumlibet.		BB A vel CC A	sC : cs.B :: R. cs. CA sB : cs.C :: cs. BA Extremæ disjunctæ.	Per Prop. 1.
4 Datis Crure & An-gulo Cruri dati con-termino, quæritur Crus reliquum.	B A Conterm. C A	BC A Extremæ Oppoſ. CB A Conjunctæ	R : t. B :: sBA : t. CA R : t. C :: sCA : t. BA Per Prop. Cathol. ſic erit. Ct. B : R :: &c.	Per Prop. 2.
5. Datis Crure & An-gulo ipſi oppoſito, quæritur Crus reli-quum.	C A Oppoſit. B A	BB A Extremæ conter. CC A Conjunctæ	t B : t CA :: R : s BA t C : t BA :: R : s CA Per Prop. Cathol. R : ct. B :: &c.	Per Caſum Præcedent.
6. Datis Hypote-nuſâ & Angulo, quæritur Crus An-gulo dato conter-minum.	B C	BB A Extremæ conter. CC A Conjunctæ	cs B : t BA R : t BC :: cs. C : t. C A Per Prop. Cathol. ct. BC : R :: &c.	Per Prop. 2.
7. Datis Angulis obliquis, quæritur Hypotenuſa.	B C	B C Extremæ Conjunctæ	r B : ct C : R :: cs. BC r C : ct B : Per Prop. Cath. ſic perſi- R : ct B :: &c. (citur.	Per Prop. 2.
8. Datis Cruribus, quæritur Hypote-nuſa.	B A, C A	B C	R : cs BA :: cs CA · cs BC Extremæ disjunctæ.	Per Caſum 1.
9. Datis Crure & An-gulo ipſi oppoſito, quæritur Hypote-nuſa.	B A C Oppoſit. C A B	B C Extremæ disjunctæ	s. B : s CA :: R : s BC sC : s BA	Per Prop. 5.
10. Datis Crure & Angulo ipſi conter-mino, quæritur Hy-potenuſa.	B A B Contermini. C A C	B C Extrem. Conjunct.	ct BA cs B : R : :: ct BC ct. CA cs C : Per Prop. Cathol. t. BA : R :: &c.	Per Caſ. 2.
11. Datis Angulo & Crure ipſi conter-mino, quæritur An-gulus reliquus.	B A B Conterm. C A C	C oppoſ. disjunct. B	sB cs BA : cs. C. R : :: s C. cs CA : cs B	Per Caſ. 3.
12. Datis Angulo & Crure ipſi oppoſito, quæritur Angulus reliquus.	B A C Oppoſit. C A B	B conterm. diſ- C (junct.	cs BA : cs C s B :: R : cs CA : cs B s C	Per Caſ. præc.

Data

Data.	Data. Latera Anguli.	Quæſita. Latera Anguli.	Analogia.	Demonſtr.
13. Datis Cruribus quæritur Angulus alterutet.	B A : C A.	B Conjunct. C	s. B A : t. C A : s. C. R :: s. C A : t. B A : s. B. Per Prop. Cathol. t. CA : s. BA :: R : ct. B &c.	Per Caſ. 5.
14. Datis Hypotenuſa & Crure, quæritur Angulus Cruri dato oppoſitus.	B A B C C A	C Oppoſ. disjun. B	s. B A : s. C. s. B C : R :: s. C A : s. B.	Per Prop. 5.
15. Datis Hypotenuſa & Crure, quæritur Angulus ab iiſdem comprehenſus.	B A B C C A	B Conterm. Conj. C	t. BA : cs. B. t. B C : R :: t. C A : cs. C. Vel R : ct. BC :: Per Pro. Ca.	Per Caſ. 6.
16. Datis Hypotenuſa & Angulo, quæritur Angulus reliquus.	B C	C B Conjunct. B C	C ct. B. R : t. :: cs. B C. B ct. C. Per Pro. Ca. ct. c : R :: &c.	Per Caſ. 7.

8. Si occurrat Triangulum quadrantale, operatio erit eadem ſi reducatur ad Rectangulum, quia ſunt quinque partes circulares, quarum tres remotiſſimæ, Complementa appellandæ ſunt, ut prius. Ut in Quadrantali H C A, H A eſt 90 grad. Pars autem Circularis hîc non eſt. Complementum C H, Complementum C A, Compl. C, A & H, ſunt 5. partes circulares.



Accipe C B Complementum Complementi H A B menſuræ H, G A D Complementum H A C, A C B Complementum Complementi H C A.

Ex hiſce 16. Caſibus ſtatim videat Lector quomodo omnes quæſtiones Trianguli Sphærici Rectanguli reſolvendæ ſunt, atq; ut Propoſitionum iſtarum uſus rectè percipiatur, hic nobis ſubjungere placet breves illuſtrationes horum Caſuum per numeros Logarithmicos, ſit itaq;.

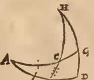
Illuſtrationes horum 16. Prob.

Problema 1.

In Triangulo Rectangulo A B C quæritur latus C B.

Datis { Hypotenuſa A C gr. 51 4′ 34″. 6443. } { Termini Rationis.
Datis { Crure A B gr. 47 0. 0. } { cs. B A : R :: cs. A C : cs. BC.

Illuſtratio per numeros:

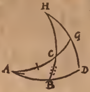


Proport. {
Coſinus B A gr. 47 0′ 0″. 9. 83378333.
Radius gr. 90. 10. 00000000.
Coſinus AC gr. 51 4′. 34″ 6443. 9. 79815673.
Coſinus B C gr. 22 53 30 3679. 9. 96437340.

Probl. 2.

In Triangulo Rectangulo A B C quæritur latus B C.

Datis { Hypotenuſa A C gr. 51 4′ 34″. 6443. / Angulo B A C gr. 30 0 0. } { Termini Rationis. R : s. A C :: s. C A B : s. BC.



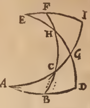
Illuſtratio per numeros.

Proport.		
Radius	gr. 90.	10. 00000000.
Sinus AC	gr. 51 4′. 34″. 6443.	9. 89097023.
Sinus CAB	gr. 30 0. 0.	9. 69897000.
Sinus C B	gr. 22 53 30. 3679.	9. 58994023.

Probl. 3.

In Triangulo Rectangulo A B C quæritur Crus C A.

Datis Angulis { C A B gr. 30 0′. 0″. / A C B gr. 70 3 44. 0601. } { Termini Rationis. s. C : cs. A :: R : cs. C B.



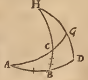
Illuſtratio per numeros.

Proport.		
Sinus ACB	gr. 70 3′. 44″. 0601.	9. 97315723.
Coſinus CAB	gr. 30 0 0.	9. 93753063.
Radius	gr. 90.	10. 00000000.
Coſinus CB	gr. 22 53 30. 3679.	9. 96437340.

Probl. 4.

In Triangulo Rectangulo A B C quæritur latus C B.

Datis { Latere A B gr. 47 0′ 0″. / Angulo B A C gr. 30 0 0. } { Termini Rationis. R : t. B A C :: s. B A : t. B C.



Illuſtratio per numeros.

Proport.		
Radius	gr. 90.	10. 00000000.
Tangens BAC	gr. 30 0′ 0″.	9. 76143937.
Sinus A B	gr. 47 0 0.	9. 86412746.
Tangens C B	gr. 22 53 30 3679.	9. 62556683.

Probl. 5.

In Triangulo Rectangulo A B C quæritur Crus A B.

Datis { Latere B C gr. 22 53′ 30″. 3679. / Angulo B A C gr. 30 0 0 } { Termini Rationis. t. C A B : t. C B :: R : s. A B.

Illuſtratio

Illuſtratio per numeros.

Proport.
- Tangens CAB gr. 300′ 0″. 9. 76143937.
- Tangens C B gr. 22 53 30. 3679. 9. 62556683.
- Radius gr. 90. 10. 00000000.
- Sinus A B gr. 470 0. 9. 86412746.



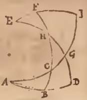
Probl. 6.

In Triangulo Rectangulo A B C quæritur Crus A B.

Datis { Hypotenuſa A C gr. 51 4′ 34″. 6443. / Angulo B A C gr. 300 0. } Termini Rationis. R : t. AC :: cs. CAB : t. AB.

Illuſtratio per numeros.

Proport.
- Radius gr. 90. 10. 00000000.
- Tangens A C gr. 51 4′ 34″. 6443. 10. 09281350.
- Coſinus CAB gr. 300 0. 9. 93753063.
- Tangens A B gr. 470 0. 10. 03034413.



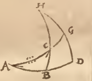
Probl. 7.

In Triangulo Rectangulo A B C quæritur Hypotenuſa A C.

Datis Anguli { B A C gr. 300 0. / A C B gr. 703 44. 0601. } Termini Rationis. t. B A C : R :: ct. ACB : cs. AC.

Illuſtratio per numeros.

Proport.
- Tangens C A B gr. 300′ 0″. 9. 76143937.
- Radius gr. 90. 10. 00000000.
- Cotangens ACB gr. 703 44 0601. 9. 55959610.
- Coſinus A C gr. 514 34 6443. 9. 79815673.



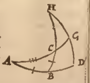
Probl. 8.

In Triangulo Rectangulo A B C quæritur Hypotenuſa A C.

Datis Cruribus { A B gr. 47 0′ 0″. / B C gr. 22 53 30. 3679. } Termini Rationis. R : cs. B A :: cs. B C : cs. A C.

Illuſtratio per numeros.

Proport.
- Radius gr. 90. 10. 00000000.
- Coſinus A B gr. 47 0′ 0″. 9. 83378333.
- Coſinus B C gr. 22 53 30. 3679. 9. 96437340.
- Coſinus A C gr. 51 4 34. 6443. 9. 79815673.



F *Probl.*

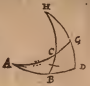
Probl. 9.

In Triangulo Rectangulo A B C quæritur Hypotenuſa A C.

Datis { Crure B C gr. 22 53′ 30″. 3679. } { Termini Rationis.
{ Angulo BAC gr. 30 0 0. } { s. B A C : s. B C :: R : s. A C.

Illuſtratio per numeros.

Proport. { Sinus B A C gr. 30 0′ 0″. 9. 69897000.
{ Sinus B C gr. 22 53 30. 3679. 9. 58994023.
{ Radius gr. 90. 10. 00000000.
{ Sinus A C gr. 51 4 34 6443. 9. 89097023.



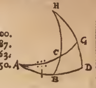
Probl. 10.

In Triangulo Rectangulo A B C quæritur Hypotenuſa A C.

Datis { Latere A B gr. 47 0′ 0″. } { Termini Rationis.
{ Angulo B A C gr. 30 0 0. } { R : ct. A B :: ct. B A C : ct. A C.

Illuſtratio per numeros.

Proport. { Radius gr. 90. 10. 00000000.
{ Cotangens AB gr. 47 0′ 0″. 9. 96965587.
{ Coſinus B A C gr. 30 0 0. 9. 93753063.
{ Cotangens A C gr. 51 4 34. 6443. 9. 90718650.



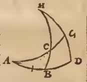
Probl. 11.

In Triangulo Rectangulo A B C quæritur Angulus C.

Datis { Angulo C A B gr. 30 0′ 0″. } { Termini Rationis.
{ Crure A B gr. 47 0 0. } { R : s. C A B :: cs. A B : cs. A C B.

Illuſtratio per numeros.

Proport. { Radius gr. 90. 10. 00000000.
{ Sinus C A B gr. 30 0′ 0″. 9. 69897000.
{ Coſinus A B gr. 47 0 0. 9. 83378333.
{ Coſinus ACB gr. 70 3 44. 0601. 9. 53275333.



Probl. 12.

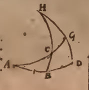
In Triangulo Rectangulo A B C quæritur Angulus B A C.

Datis { Crure A B gr. 47 0′. 0″. } { Termini Rationis.
{ Angulo A C B gr. 70 3 44. 0601. } { cs. A B : cs. A C B :: R : s. CAB.

Illuſtratio

Illuſtratio Arithmetica.

Proport.
- Coſinus A B gr. 47 0′ 0″. 9. 83378333.
- Coſinus ACB gr. 70 3 44. 0601. 9. 53275333.
- Radius 90. gr. 10. 00000000.
- Sinus C A B gr. 30 0 0. 9. 69897000.



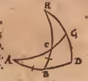
Probl. 13.

In Triangulo Rectangulo A B C quæritur Angulus C A B

Datis Cruribus { A B gr. 47 0 0. / B C gr. 22 53 30. 0601. } Termini Rationis. s. A B : R :: t. C B : t. C A B.

Illuſtratio per numeros.

Proport.
- Sinus B A gr. 47 0′ 0″. 9. 86412746
- Radius gr. 90. 10. 00000000.
- Tangens B C gr. 22 53 30 3679. 9. 62556683.
- Tangens CAB gr. 30 0 0. 9. 76143937.



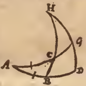
Probl. 14.

In Triangulo Rectangulo A B C quæritur angulus A C B.

Datis { Hypotenuſa AC gr. 51 4′ 34″.6443. / Crure A B gr. 47 0 0. } Termini Rationis. s. A C : R :: s. A B : s. A C B.

Illuſtratio per numeros.

Proport.
- Sinus A C gr. 51 4′ 34″.6443. 9. 89097023.
- Radius gr. 90. 10. 00000000.
- Sinus A B gr. 47 0 0 9. 86412746.
- Sinus A C B gr. 70 3 44. 0601. 9. 97315723.



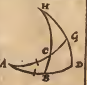
Probl. 15.

In Triangulo Rectangulo A B C quæritur Angulus B A C.

Datis { Hypotenuſa A C gr. 51 4′ 34″. 6443. / Crure A B gr. 47 0 0. } Termini Rationis. t. A C : R :: t. A B : cs. CAB.

Illuſtratio Arithmetica.

Proport.
- Tangens AC gr. 51 4′ 34″.6443. 10. 09281350.
- Radius gr. 90. 10. 00000000.
- Tangens A B gr. 47 0. 0. 10. 03034413.
- Coſinus C A B gr. 30 0 0. 9. 93753063.

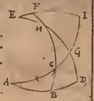


Probl. 16.

In Triangulo Rectangulo A B C quæritur Angulus C A B.

Datis { Hypotenuſa A C gr. 51 4′. 34″. 6443. } { Termini Rationis.
Angulo A C B gr. 70 3. 44. 0601. } { R : t. ACB :: cs. AC : ct. CAB.

Illuſtratio per numeros.



Proport. { Radius gr. 90. 10. 00000000.
Tangens ACB gr. 70 3′ 44″ 0601. 10. 44040390.
Coſinus A C gr. 51 4 34. 6443. 9. 79815673
Cotangens CAB gr. 30 0 0. 10. 23856063.

CAP. VI.

In Triangulis Sphæricis Obliquangulis.

1. QUod ſi Data & Quæſita opponentur, Quæſtiones reſolvendæ ſunt *per Prop.* 5. quando quæritur Angulus.

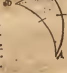
Probl. 1.

Datis Lateribus duobus & Angulo alteri datorum oppoſito, quæritur Angulus reliquo Lateri oppoſitus.

In Triangulo Obliquangulo A C D quæritur Angulus A D C.

Datis { Lateribus { A C gr. 30 0′ 0″.
A D gr. 42 8 47. 9286. } { Termini Rationis.
Angulo A C D gr. 103 59 57. 5028. } { s. AD : s. ACD :: s. AC : s. ADC.

Illuſtratio Arithmetica.



Proport. { Sinus Lateris A D gr. 42 8′ 47″. 9286. 9 82674224.
Sinus Anguli A C D gr. 76 0 2. 4972. 9 98690543.
Sinus Lateris A C gr. 30 0 0. 9 69897000.
19 68587543.
Sinus Anguli ADC gr. 46 18 7. 2720. 9 85913319.

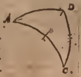
Probl. 2.

Datis Angulis duobus & latere alteri datorum oppoſito, quæritur Latus reliquo Angulo oppoſitum.

In Triangulo Obliquangulo A C D quæritur Latus C D.

Datis { Angulis { A D C gr. 103 59′ 57″. 5028.
C A D gr. 36 7 52. 4478. } { Termini Rationis.
Latere A C gr. 42 8 47. 9286. } { s. ADC : s. AC :: s. CAD : s. CD.

Illuſtratio



Illuſtratio per numeros.

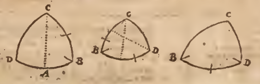
Proport.	Sinus Anguli CDA	gr. 76 0′. 2″. 4972.	9. 98690543.
	Sinus Lateris A C	gr. 42 8 47. 9286.	9. 82674224.
	Sinus Anguli CAD	gr. 36 7 52. 4478	9. 77058455.
			19. 59732679.
	Sinus Lateris C D	gr. 24 3 54. 6667.	9. 61042136.

2. Dantur 10. Caſus, qui non niſi duarum ad minimum analogiarum ope reſolvi poſſint, idq; fit (per demiſſionem perpendicularis) reducendo Obliquangulum in duo rectangula; ideoq; nobis conſideranda veniunt (1.) Quæ ad Perpendicularem (quâ dividatur Rectangulum) ducendam ſpectant. (2.) Quid in primâ operatione inveniatur. (3.) Quomodo quæſtio per ſecundam operationem reſolvatur.

3. Generalem Regulam (pro demittendâ Perpendiculari) tradere poſſimus; viz. ita res diſponi poſſint, ut quæſtio ſolvi poſſit per duas ſolummodò operationes. Quod ut promptè fiat, hoc accipe Præceptum.

4. Ducatur perpendicularis ab extremitate Lateris dati, in cujus alterâ extremitate datur etiam & Angulus; ſcilicet, ab Angulo C ducatur Perpendicularis C A, Angulum B adjacentem Lateri dato B C ſubtendens.

Canon hic in duobus Caſibus limitationem admittit. 1. Quando datis duobus Angulis, unà cum Latere comprehenſo, aliud Latus inveniendum. 2. Quando datis duobus Lateribus, unà cum Angulo comprehenſo, alter Angulus eſt inveniendus. In primo caſu ducatur Perpendicularis ab extremitate Lateris dati, ita ut ſubtendat Angulum datum. In ſecundo ducatur ut priùs, atq; ita ut ſubtendat Angulum quæſitum.



5. His obſervatis, ut oportet, procedendum ad primam analogiam, quæ ſemper perfici debet in illo Triangulo Rectangulo partiali, in quo duo dantur, præter Angulum rectum, atq; ibidem vel verticalis Angulus quærendus, vel Baſis.

6. Si Quæſtio de Angulo proponatur, primùm quæratur Angulus verticalis, niſi perpendicularis ducatur ad Latus notum. Sin autem Quæſtio de Latere proponatur, primùm Baſis eſt invenienda, niſi perpendicularis protrahatur ab Angulo dato, in utraq; exceptione contrarium quærendum per *CATHOLICAM PROPOSITIONEM.*

7. Jam deniq; veniamus ad ſecundam analogiam, quæ conſiſtit in comparatione homogeneorum terminorum in utroq; Triangulo, cum verticalibus angulis & Baſibus; ſunt enim in hoc caſu, atq; omnibus aliis, proportionales.



Ut in Triangulo B C D in duo rectangula diviſo: dico in Sinubus & Tangentibus circularium partium, futurum fore.

A B : B : : A D : D. Nempe quia per *Catholicam Propoſitionem.*

In Triangulis {A B C} t. A C : R : : s. A B : ct. A B C.
{A D C} t. A C : R : : s. A D : ct. A D C.

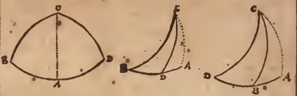
Ergò (Per 11. 5. Element.)

s. A B : ct. A B C : : s. A D : ct. A D C.

8. Atq; ita videmus mox procedendum eſſe (invento Angulo verticali ſive Baſi ſecundum conditionem quæſtionis) procedendum (inquam) eſſe rectà ad homogeneos terminos, ut Baſes, ſive Hypotenuſas, &c

9. Conferenda eſt perpendicularis cum unoquoq; termino homogeneo, ſive detur ſive quæ atur in utroq; Triangulo, ad diſtinguendum inter partem mediam & extremas, atque ad aptandos iis Sinus & Tangentes prout decet.

10. Tum in utrâq; collatione rejectis perpendiculari & Radio, Pars media atq; extremæ in uno Triangulo proportionales erunt mediæ & extremis in altero, quod in his 8 Caſibus illuſtratum vides.



DATA & QUÆSITA.	Data. Lat.Ang.	Quæſita. Lat.Ang.	Analogia prima.	Analogia ſecunda, & Demonſtratio.
3. Datis Lateribus duobus & Angulo alteri datorum oppoſito, quæritur Angulus ab iiſdem comprehenſus.	B C Oppoſ. B. D C	Incluſ. C.	ct. B:R :: cs. BC: ct.C. Si perpendicularis cadet intra, tum B C A + C A D = B C D. Sin extra. D C A — B C A, vel B C A — D C A = B C D.	R : t. C A : : ct. B C : cs. C. R : t. C A :: ct. CD : cs.ACD. Ergò. ct. BC:cs. BCA : : ct.CD : cs. ACD. tunc BCA+ACD(1ª) & BCA—ACD(2ª.) At DCA B C A (3ª.) = C.
4. Datis 2. Lateribus & Angulo alteri datorum oppoſito, quæritur Latus reliquum.	B C Oppoſ. B. C D	B D	ct. BC:R :: cs. B : t. BA B A + A D in 1ª, B A — D A in 2ª, D A — B A in 3ª, = D B.	cs.CA:R :: {cs. B C : cs. B A. cs. C D : cs. A D.} Ergò. cs. BC:cs. BA::cs. CD:cs.AD.
5. Datis Lateribus duobus, & Angulo ab iiſdem comprehenſo, quæritur Angulus alteruter.	B C Compr. B. B D	Oppoſ. D	ct. B C:R :: cs.B:t.BA.	ct. C A : R : : {s. B A : ct. B. s. A B : ct. D.} Ergò s. BA:ctB::s. AD : ct.D.
6. Datis Lateribus duobus & Angulo ab iiſdem comprehenſo, quæritur Latus reliquum.	B C Compr. B. B D.	D C	ct.BC : R :: cs.B : t:BA vel R:t. BC :: cs. A : t. BA	R:cs.CA :: {cs. B A : cs. B C. cs. A D : cs. C D.} Ergò. cs.BA:cs.BC :: cs.DA:cs.DC.

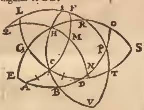
DATA

DATA & QUÆSITA.	Data. Lat. Ang.	Quæſita. Lat. Ang.	Analogia prima.	Analogia ſecunda, & Demonſtratio.
7. Datis Angulis duobus & latere alteri datorum oppoſito, quæritur Latus ab iiſdem comprehenſum.	B C B D	BD Comp.	ct.BC : R :: cs.B:t.BA.	R : t.C A :: ct. B : s. B A. ct. D : s. A D. Ergò. ct. B : s. B A :: ct. D : s. A D.
8. Datis Angulis duobus & Latere alteri datorum oppoſito, quæritur Angulus reliquus.	BC. Oppo B D	C	ct.B:R::cs.BC:ct.BCA.	cs. C A : R :: cs. B : s. B C A. cs. D : s. A C D. Ergò. cs. B : s. BCA::cs. D:s. ACD.
9. Datis Angulis duobus & Latere ab iiſdem comprehenſo, quæritur Latus alterutrum.	B C B C	DC Oppoſ.	ct.B:R::cs.BC:ct.BCA.	t. A C : R :: cs. A C B:ct. BC. cs ACD:ct. D C. Ergò. cs.ACB:ct.BC::cs.ACD:ctDC
10. Datis Angulis duobus & Latere ab iiſdem comprehenſo, quæritur Angulus reliquus.	B C B C	D	ct.B:R::cs.BC:ct.BCA.	R : cs. C A :: s. A C B : cs. B. s. A C D : cs. D. Ergò. s. ACB:cs. B :: s. ACD:cs. D.

Illuſtrationes præcedentium 8. Caſuum per numeros.

Probl. 3.

In Triangulo Oblíquangulo A D C quæritur Angulus A C D.

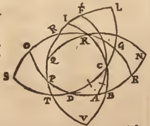


		1. Superioris Schematis.	Infer. Schem.
Dat. Lat.	A C gr.	24 3′. 54″.6667	30 c′ o″.
	CD	300 0. 0000	42 8 47 9286.
Dat. Ang.	A D C	367 52 4478.	46 18 72720.

Termini Rationum.

1. ct. S O : R :: cs. C D : ct. D C B.
2. ct. C D : cs. D C B :: ct. C A : cs. BCA.

In Schem. { Superl. D C B + B C A = A C D.
Infer. D C B − A C B = A C D. }



Illuſtra-

Illuſtratio Arithmetica.

	(1.)					
Proport.	Cotangens S O = A D C	gr. 36	7	52.	4478.	10. 13664863.
	Radius D S	90	0	0.	0000.	10. 00000000.
	Coſinus D C	30	0	0.	0000.	9. 9.753063.
	Cotangens L I = D C B	57	41	50.	2308.	9. 80088200.
	(2.)					
Proport.	Cotangens C D	30	0	0.	0000.	10. 23856063.
	Coſinus L I = D C B	57	41	50.	2308.	9. 72786026.
	Cotangens C A	24	3	54.	6667.	10. 35008848.
						20. 07794874.
	Coſinus I F = B C A	46	18	7.	2720.	9. 83938811.
	Arcus primò inventus L I.	57	41	50.	2308.	
Summa Angulorum vertical.		103	59	57.	5028.	Angulus quæſitus ACD.

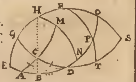
In Triangulo inferioris Schematis.

	(1.)					
Propor.	Cotangens S O = A D C	gr. 46	18	7.	2720.	9. 98025492.
	Radius D S	90.				10. 00000000.
	Coſinus C D	42	8	47.	9286.	9. 87007002.
	Cotangens T V = D C B	52	11	29.	4577.	9. 88981510.
	(2.)					
Proport.	Cotangens C D	gr. 42	8	47.	9286.	10. 04332778.
	Coſinus D C B	52	11	29.	4577.	9. 78747751.
	Cotangens C A	30	0	0.	0000.	10. 23856063.
						20. 02603814.
	Coſinus I F = B C A	16	3	37.	0000.	9. 98271036.

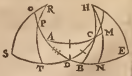
Eſt ergò arcus	I F	gr. 16	3'.	37''.	0098.	
Et arcus 1. inventus	I L	52	11	29.	4577.	
Differentia eſt	F L	36	7	52.	4479.	Menſura Anguli A C D.

Probl. 4.

In Triangulo Obliquangulo A D C quæritur Latus A D.



Datis		1. Superioris Schematis.	Infer. Schem.
Lat.	D C	gr. 30 0'. 0''. 0000.	24 3' 54''.6667.
	A C	24 3 54. 6667	137 51 12. 0714.
Ang.	A D C	36 7 52. 4478.	103 59 57. 5028.



Termini Rationum.

1. ct. D C : R : : cs. A D C : ct. D B.
2. cs. D C : cs. D B : : cs. A C : cs. A B.

In Schem. { Superiore A B + D B = A D. / Infer. A B − B D = A D.

Illuſtratio

Illuſtratio per numeros.

(1.)

Proport.	Cotangens DC	gr. 30 0 0. 0000.	10. 23856063.	
	Radius	90. 0 0.	10. 00000000.	
	Coſinus SO = ADC	36 7 52. 4478.	9. 90723317.	
	Tangens DB	25 0 0. 0000.	9. 66867254.	

(2.)

Proport.	Coſinus DC	30 0 0. 0000.	9. 93753063.
	Coſinus DB	25 0 0. 0000.	9. 95727571.
	Coſinus AC	24 3 54. 6667.	9. 96050984.
			19. 91778555.
	Coſinus AB	17 8 47. 9286.	9. 98025492.
	Segmentum DB add.	25 0 0. 0000.	
Ergò Segmentorum Summa.		42 8 47. 9286.	Latus quæſitum AD.

Praxis pro Latere AD Trianguli inferioris Schematis.

(1.)

Proport.	Cotangens ST = DC	gr. 24 3 54. 6667.	10. 35088848.
	Radius RS	90. 0 0.	10. 00000000.
	Coſinus EG = CDA	76 0 2. 4972.	9. 38365408.
	Tangens OP = DB	6 9 57. 7821.	9. 03356560.

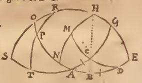
(2.)

Proport.	Coſinus DC	gr. 24 3 54. 6667.	9. 96050984.
	Coſinus BD	6 9 57. 7821.	9. 99748021.
	Coſinus AC	42 8 47. 9286.	9. 87007002.
			19. 86755023.
	Coſinus AB	36 9 57. 7821.	9. 90704039.
Aufer Segmentum DB		6 9 57. 7821.	
Differentia eſt AD		30 0 0. 0000.	Latus quæſitum.

Probl. 5.

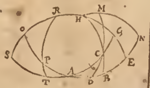
In Triangulo Obliquangulo ACD quæritur Angulus ADC:

		1. Superioris Schematis.	Infer. Schem.
Dat.	L. AC	gr. 24 3 54. 6667.	42° 8′ 47″. 9286.
	L. AD	42 8 47. 9286.	30 0 0. 0000.
	Ang. DAC	46 18 7. 2730	36 7 52. 4478.



Termini Rationum.

1. ct. AC : R :: ct. CAD : t. AB. Si Perpend. cadit intra, tum AD − AB = BD.
2. s. AB : ct. CAB :: s. BD : ct. CDA.



Illuſtratio Arithmetica.

(1.)

Proport.			gr.	′	″	Logarithmi
Proport.	Cotangens	A C gr.	24	3	54. 6667.	10. 35008848.
	Radius	R S	90.			10. 00000000.
	Coſinus E G = C A D		46	18	7. 2730.	9. 83938811.
	Tangens O P = A B		17	8	47. 9286.	9. 48929963.
	Ergò reliquum ſegmentum B D		25	0	0. 0000.	

(2.)

Proport.			gr.	′	″	Logarithmi
Proport.	Sinus	B A gr.	17	8	47. 9286.	9. 46955455.
	Cotangens E G = CAB		46	18	7. 2730.	9. 98025492.
	Sinus	B D	25	0	0. 0000.	9. 62594826.
						19. 60020318.
	Cotangens N M = C D A		36	7	52. 4478.	10. 13664863.

Praxis pro Angulo A D C Triangulo inferioris Schematis.

Proport.			gr.	′	″	Logarithmi
	(1.)					
Proport.	Cotangens	A C	gr. 42	8	47. 9286.	10. 04332778.
	Radius	R S	90.			10. 00000000.
	Coſinus E G = C A D		36	7	52. 4478.	9. 90722317.
	Tangens O P = A B		36	9	57. 7821.	9. 86390539.
	(2.)					
	Sinus	B A	gr. 36	9	57. 7821.	9. 77094579.
	Cotangens E G = CAB		36	7	52. 4478.	10. 13664863.
	Sinus	D B	6	9	57. 7821.	9. 03104582.
						19. 16769445.
	Cotangens N M = C D B		76	0	2. 4972.	9. 39674866.
	Complementum		103	59	57. 5028. A D C.	

Non minore moleſtia reliqui duo Anguli ſimul inveſtigari poterunt, eodem prorſus modo, quo ad Problema nonum re.iqua Latera venati ſumus.

Latus A C	gr. 24°	3′	54′. 6667.	Latus A C	42	8	47. 9286.
Latus A D	42	8	47 9286.	Latus A D	30	0	0. 0000.
Summa Laterum	66	12	42. .5953	Summa Laterum	72	8	47. 9286.
Semiſſis Summæ	33	6	21. 2976.	Semiſſis Summæ	36	4	23. 9642.
Differentia Lat.	18	4	53. 2619.	Differentia Lat.	12	8	47. 9286.
Semiſſis differ.	9	2	26. 6309	Semiſſis differentiæ	6	4	23. 9643.

(1.)

Proport.		gr.	′	″	Logarithmi
Proport.	Sinus ſemiſſis Summæ Laterum	gr. 33	6′	21″.2976:	9. 73734252.
	Sinus ſemiſſis differentiæ Laterum	9	2	26. 6309.	9. 19627724.
	Cotangens ½ Anguli comprehenſi	23	9	3. 6360.	10. 36897367.
					19. 56525091.
	Tangens ½ differ. reliquorum Angul.	33	56	2. 5275.	9. 82790839.
	(2.)				
	Coſinus ſemiſſis ſummæ Laterum	33	6	21. 2976.	9. 92306898.
	Coſinus ſemiſſis differentiæ Laterum	9	2	26. 6309.	9. 99457091.
	Cotangens ½ Anguli comprehenſi	23	9	3. 6360.	10. 36897367.
					20. 36354458.
	Tangens Summæ ſemiſſis Ang.	70	3	54. 9753.	10. 44047560.
	Summa	103	59	57. 5028.	Angulus ACD.
	Differentia	36	7	52. 4478.	Angulus ADC.

(1.)

(1.)

Proport.						
	Sinus ſemiſſis Summæ Laterum	36	4	23.	9643.	9. 76998263.
	Sinus ſemiſſis differentiæ Laterum	6	4	23.	9643.	9. 02449018
	Cotangens ; Anguli comprehenſi	18	3	56.	2239.	10. 48653426
						19. 51102444
	Tangens ; differ. reliquorum Angul.	28	50	55	1154.	9. 74104181.

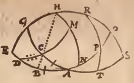
(2.)

Proport.						
	Coſinus ſemiſſis ſummæ Laterum gr.	36	4	23.	9643.	9. 90755330.
	Coſinus ſemiſſis differentiæ Laterum	6	4	23.	9643.	9. 99755557.
	Cotangens ; Anguli comprehenſi.	18	3	56.	2239.	10. 48653426
						20. 48408983
	Tangens ; Summæ reliquorum Ang.	75	9	2.	3874	10. 57653653.
	Semiſſis differentiæ Angulorum.	28	50	55.	1154.	
	Summa	103	59	57.	5028.	Angulus ADC.
	Differentia	46	18	7.	2720.	Angulus ACD.

Probl. 6.

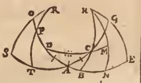
In Triangulo Obliquangulo A C D quæritur Latus D C:

Dat.		1. Superioris Schematis.	2. Infer. Schem.
Lat.	A D gr.	42 8′ 47″. 9286.	24 3′ 54″. 6667.
	A C	30 0 0. 0000.	30 0 0. 0000.
Ang.	DAC	36 7 52. 4478.	103 59 57. 5028.



Termini Rationum.

1. ct. A C : R :: cs. D A C : t. A B.
Si Perpendicularis cadit intra, tum A D — A B = B D. ſin extra A D + A B = D B.
2. cs. B A : cs. A C :: cs. B D : cs. D C.



Illuſtratio Arithmetica.

(1.)

Proport.							
	Cotangens	A C gr.	30	0′	0″.	0000.	10. 23856063.
	Radius		90.				10. 00000000
	Coſinus E C = D A C		36	7	52.	4478.	9. 90723318.
	Tangens O P = A B		25	0	0.	0000.	9. 66867255.
	Eſt ergo Segmentum B D		17	8	47.	9286.	

(2)

Proport.							
	Coſinus	A B gr.	25	0	0.	0000.	9. 95727571.
	Coſinus	A C	30	0	0.	0000.	9. 93753063.
	Coſinus	B D	17	8	47.	9286.	9. 98025492.
							19. 91778555.
	Coſinus	D C	24	3	54.	6667.	9. 96050984.

Praxis pro Latere D C Trianguli inferioris Schematis.

(1.)

Proport.	Cotangens	A C gr.	30	0.	0. 0000.		10. 23856063.
	Radius	R S	90.				10. 00000000.
	Coſinus	D A C	103	59	57. 5028.		9. 38365408.
	Tangens	O P = A B	7	57	3. 2059.		9. 14509345.
	Segmentum	D A	24	3	54. 6667.		
		Summa	32	0.	57. 8726.	D B.	

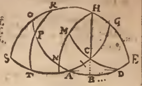
(2.)

Proport.	Coſinus	A B gr.	7	57	3. 2059.	9. 99580493.
	Coſinus	A C	30	0	0. 0000.	9. 93753063.
	Coſinus	D B	32	0	57. 8726.	9. 928[illegible]4432.
						19. 86587495.
	Coſinus	D C	42	8	47. 9286.	9. 87007002.

Probl. 7.

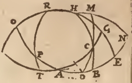
In Triangulo Obliquangulo A D C quæritur Latus A D.

			1. Superioris Schematis.	2. Infer. Schem.
Dat.	Ang	CDA	36° 7′ 52″. 4478.	103° 59′ 57″ 5028.
		CAD	46 18 7. 2720.	36 7 52. 4478.
	Lat.	A C	24 3 54. 6667.	42 8 47. 9285.



Termini Rationum.

1. ct. A C : R :: cſ. C A D : t. A B.
2. ct. C A D : s. A B :: ct. A D C : s. D B.



Si Perpendicularis cadit intra, A B + D B = A D : Sin extra, A B − B D = A D.

Illuſtratio per numeros.

(1.)

Proport.	Cotangens	S T = A C gr.	24	3	54. 6667.	10. 35008848.
	Radius		90.			10. 00000000.
	Coſinus	S O = C A D	46	18	7. 2720.	9. 83938811.
	Tangens	O P = A B	17	8	47. 9286.	9. 48929963.

(2.)

Proport.	Cotangens	E G = C A D gr.	46	18′	7″. 2720.	9. 98025492.
	Sinus	D E = A B	17	8	47. 9286.	9. 46955455.
	Cotangens	N M = A D C	36	7	52. 4478.	10. 13664863.
						19. 60620318.
	Sinus Segmenti	D B	25	0	0. 0000.	9. 62594826.
	Segmentum A B eſt		17	8	47. 9286.	
	Summa Segmentorum eſt A D.		42	8	47. 9286.	Latus quæſitum.

Praxis

Praxis pro Latere A D Trianguli inferioris Schematis.

(1.)

Proport.	Cotangens A C	gr. 42	8	47. 9286.		10. 04332778.
	Radius R S	90.				10. 00000000.
	Coſinus S O = C A D	36	7	52. 4478.		9. 90723317.
	Tangens O P = A B	36	9	57. 7821.		9. 86390539.

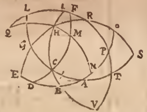
(2.)

Proport.	Cotangens S O = C A D	36	7	52. 4478.	10. 13664863.
	Sinus O P = A B	36	9	57. 7821.	9. 77094579.
	Cotangens A D C	103	59	57. 5028.	9. 39674866.
					19. 16769445.
	Sinus D B	6	9	57. 7821.	9. 03104582.
	Segmentum A B	36	9	57. 7821.	
	Differ. Segment. eſt A D	30	0	0. 0000.	Latus quæſitum.

Probl. 8.

In Triangulo Obliquangulo A D C quæritur Angulus A C D.

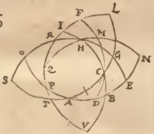
		1. Superioris Schematis.	Infer. Schem.
D.	A. DAC	gr. 36 7 52.4478	46° 18′ 7″. 2720.
	ADC	46 18 7.2720	103 59 57. 5028.
	Lat. A C	30 0 0.0000	42 8 47.9286.



Termini Rationum.

1. ct. C A D : R : : cs. A C : ct. A C B.
2. cs. C A D : S. ACB :: cs. CDB : s. BCD.

Si Perpendicularis cadit intra, A C B + B C D = A C D: ſin extra, A C B − BCD = A C D.



Illuſtratio Arithmetica.

(1.)

Proport.	Cotangens E G = C A D	gr. 36	7	52.	4478.	10. 13664863.
	Radius	90.				10. 00000000.
	Coſinus A C	30	0	0.		9. 93753063.
	Cotangens T V = A C B	57	41	50.	2308	9. 80088200.

(2.)

(2.)

Proport.	Coſinus EG = CAD	gr. 36	7′	52″	4478.	9. 90723818.
	Sinus IL = ACB	57	41	50.	2308.	9. 92697825.
	Coſinus NM = CDB	46	18	7.	2720.	9. 83938811.
						19. 76636636.
	Sinus IF = DCB	46	18	7.	2720.	9. 85913318.
	Angulus ACB eſt	57	41	50.	2308.	
	Summa.	103	59	57.	5028.	Eſt Angulus ACD.

Praxis pro Angulo ACD Trianguli inferioris Schematis.

(1.)

Proport.	Cotangens FG = CAD	gr. 46	18′	7″.	2720.	9. 98025492.
	Radius	90.				10. 00000000.
	Coſinus AC	42	8	47.	9286.	9. 87007002.
	Cotangens TV vel LI = ACB	52	11	29.	4577.	9. 88981510.

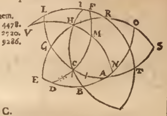
(2.)

Proport.	Coſinus EG = CAD	gr. 46	18	7.	2720.	9. 83938811.
	Sinus LI = ACB	52	11	29.	4577.	9. 89766241.
	Coſinus CDB	76	0	2.	4972.	9. 38365409.
						19. 28131650.
	Sinus IF = DCB	16	3	37.	0098.	9. 44192839.
	Eſt autem Arcus IL	52	11	29.	4577.	
	Differentia eſt arcus LF	36	7	52.	4479.	Menſura Anguli ACD.

Probl. 9.

In Triangulo Obliquangulo ACD quæritur Latus DC.

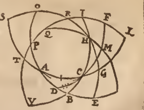
Dat.		1. Superioris Schematis.	Infer. Schem.
A.	DAC	gr. 36 7′ 52″ 4478	36 7′ 52″. 4478.
	ACD	103 59 57. 5028.	46 18 7. 2720.
Lat.	AC	30 0 0. 0000.	42 8 47. 9286.



Termini Rationum.

1. ct. CAD : R :: cs. AC : cs. ACB.
2. cs. ACB : ct. AC :: cs. BCD : ct. DC.

Si Perpendicularis cadit intra, tum in primâ operatione. ACD − ACB = BCD. Sin extra, ACB − ACD = BCD.



Illuſtratio

Illuſtratio per numeros.

(1.)

Proport. Cotangens E G = C A D	gr. 36 7′ 52″. 4478.	10. 13664863.
Radius	90.	10. 00000000.
Coſinus A C	30 0 0.	9. 93753063.
Cotangens L I = A C B	57 41 50. 2308.	9. 80088200.
Angulus A C D	103 59 57. 5028.	
Differentia eſt Ang. B C D	46 18 7. 2720.	

(2.)

Proport. Coſinus L I = A C B	gr. 57 41 50. 2308.	9. 72786026.
Cotangens A C	30 0 0.	10. 23856063.
Coſinus I F = B C D	46 18 7. 2720.	9. 83938811.
		20. 07794874.
Cotangens F M = D C	24 3 54. 6667.	10. 35008848.

Sin extra cadit Perpendiculum, ut in inferiore Schemate, retentis reliquis datis. Aio.

(1.)

Proport. Cotangens E G = C A D	gr. 36 7 52. 4478.	10. 13664863.
Radius	90.	10. 00000000.
Coſinus A C	42 8 47. 9286.	9. 87007002.
Cotangens L I = A C B	61 34 27. 2475.	9. 73342139.
Aufer Angulum A C D	46 18 7. 2720.	
Et differentia eſt B C D	15 16 19. 9755.	

(2.)

Proport. Coſinus L I = A C B	gr. 61 34 27. 2475.	9. 67762494.
Cotangens A C	42 8 47. 9286.	10. 04332778.
Coſinus B C D	15 16 19. 9755.	9. 98438565.
		20. 02771341.
Cotangens F M = D C	24 3 54. 6667.	10. 35008849.

Poterunt ex iiſdem datis reliqua duo Latera eodem labore ſimul obtineri, hunc ſcilicet in modum.

Angulus D A C	gr. 36 7′ 52″.4478.	Angulus D A C	gr. 36 7′ 52″.4478.
Angulus A C D	103 59 57. 5028.	Angulus A C D	46 18 7. 2720.
Summa Angulorum	140 7 49. 9506.	Summa Angulorum	82 25 59. 7198.
Semiſſis Summæ	70 3 54. 9753.	Semiſſis Summæ	41 12 59. 8599.
Differentia Angulorum	67 52 5. 0550.	Differentia Angulorum.	10 10 14. 8242.
Semiſſis differentiæ	33 56 2. 5275.	Semiſſis differentiæ	5 5 7. 4121.

(1.)

Proport. Sinus Semiſſis Summæ Angulorum	gr. 70 3′ 54″.9753.	9. 97316557.
Sinus Semiſſis differentiæ Angulorum	33 56 2. 5275.	9. 74681944.
Tangens ½ Lateris comprehenſi	15 0 0. 0000.	9. 42805245.
		19. 17487189.
Tangens ½ differentiæ reliq. Laterum	9 2 26. 6309.	9. 20170632.

(2.)

Proport. Coſinus ½ Summæ Angulorum	gr. 19 56′ 5″. 0247.	9. 53268997.
Coſinus ½ differentiæ Angulorum	56 3 57. 4725.	9. 91891105.
Tangens Semiſſis Lateris comprehenſi	15 0 0. 0000.	9. 42805245.
		19. 34696350.
Tangens ½ Summæ Laterum	33 6 21. 2977.	9 81427353.
Semiſſis differentiæ Laterum eſt	9 2 26. 6309.	
Summa Summæ & differentiæ Laterum eſt	42 8 47. 9286.	Latus A D quæſ.
Differentia Summæ & differ. Laterum eſt	24 3 54. 6668.	Latus D C quæſ.

Retentis ſimiliter datis Trianguli inferioris Schematis, Aio.

(1.)

(1.)

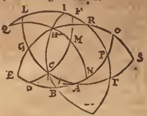
Proport.	Sinus ſemiſſis ſummæ Angul. gr.	41	12′	59″.8599.	9. 81882464.
	Sinus ; differentiæ Angulorum	5	5	7. 4121.	8. 94763145.
	Tangens ; Lateris comprehenſi	21	4	23. 9643.	9. 58583627.
	(2.)				18. 53346772.
	Tangens ; differ. reliquorum Lat.	2	58	2. 6667.	8. 71464308.

Proport.	Coſinus ſemiſ. Summæ Ang. gr.	48	47	0. 1401.	9. 87634702.
	Coſinus ; differ. Angulorum	84	54	52: 5879.	9. 99828711.
	Tangens ſemiſſis Lat. comprehenſi	21	4	23. 9643.	9. 58583627.
					19. 58412338.
	Tangens ſemiſſis Summæ Lat.	27	1	57. 3333.	9. 70777636.
	Semiſſis differentiæ Laterum eſt	2	58	2. 6667.	
	Summa Summæ & differ. Lat. eſt	30	0	0. 0000.	Latus A D quæſ.
	Differentia Summæ & differ. Lat. eſt	24	3	54. 6666.	Latus D C quæſ.

Probl. 10.

In Triangulo Obliquangulo A C D quæritur Angulus A D C.

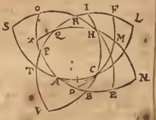
		1. Superioris Schematis.	2. Infer. Schem.
D.	A. DCA gr.	103 59′ 57″.5028.	36° 7′ 52″. 4478.
	A. D A C	36 7 52. 4478.	46 18 7. 2720.
	Lat. A C	30 0 0.	42 8 47. 9286.



Termini Rationum.

1. ct. C A D : R :: cs. A C : ct. A C B.
2. s. A C B : cs. C A B :: s. BCD : cs. ADC.

Si Perpendicularis cadit intra, A C D − A C B = B C D. Sin extra, A C B − A C D = D C B.



Illuſtratio per numeros.

(1.)

Proport.	Cotangens E G = C A D gr.	36 7′ 52″.4478.	10. 13664863.
	Radius	90.	10. 00000000.
	Coſinus A C	30 0 0. 0000.	9. 93753063.
	Cotangens I L = A C B	57 41 50. 2308.	9. 80088200.
	Ergò B C D	46 18. 7. 2720.	

(2.)

(2)

		gr.	′	″	
Proport.	Sinus IL = ACB	57	41	50. 2308.	9 92697825.
	Coſinus EG = CAB	36	7	52. 4478.	9. 90723317.
	Sinus IF = BCD	46	18	7. 2720.	9. 85913319.
					19. 76636636.
	Coſinus NM = ADC	46	18	7. 2720.	9. 83938811.

(1.)

		gr.	′	″	
Proport.	Cotangens EG = CAD	46	18	7. 2720.	9. 98025492.
	Radius AE	90.			10. 00000000.
	Coſinus GL = AC	42	8	47. 9286.	9. 87007002.
	Cotangens IL = ACB	52	11	29. 4577.	9. 88981510.
	ACD	36	7	52. 4478.	
	BCD	16	3	37. 0099.	

(2.)

		gr.	′	″	
Proport.	Sinus IL = ACB	52	11	29. 4577.	9. 89766241.
	Coſinus EG = CAB	46	18	7. 2720.	9. 83938811.
	Sinus IF = BCD	16	3	37. 0099.	9. 44102838.
					19. 28131649.
	Coſinus NM = CDB	76	0	2. 3972.	9. 38365408.
	Complementum MX eſt	103	59	57. 5028.	Menſura Anguli ADC.

Probl. 11.

Datis tribus Lateribus invenire Angulum.

CAdat Perpendicularis ab aliorum Angulorum quolibet, puta C, inveniri poſſint Segmenta Baſis, ſcilicet BA, AD, hoc modo.

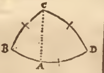
Ut Tangens ſemiſummæ Baſium, ad Tangentem ſemiſummæ Laterum, ita Tangens Semidifferentiæ Laterum, ad Tangentem Semidifferentiæ Baſium.

Jam igitur inventâ Baſium ſemidifferentiâ, quæ ſi addatur ſemiſummæ Baſium, dabitur Segmentum majus; ſin autem ſubtrahatur, dabitur Segmentum minus; tum per Propoſitionem Catholicam, Angulum quæſitum invenire licet.

Notandum quòd ſi Perpendicularis cadat extra Triangulum, tum Semiſumma erit Semidifferentia, & contra.

In Triangulo Obliquangulo BCD quæritur Angulus CBD.

			gr.	′	″
Datis	Lateribus	BC	24	3′	54″.6667.
		CD	30	0	0. 0000.
	Baſi	BD	42	8	47. 9286.
Summa Laterum			54	3	54. 6667.
Differentia Laterum			5	56	5. 3333.
Semiſſis Summæ Laterum			27	1	57. 3333.
Semiſſis differentiæ Lat.			2	58	2. 6666.
Semiſſis Summæ Baſium			21	4	23. 9643.



Illuſtratio Arithmetica.

(1.)

		gr.	′	″	
Proport.	Tangens Semiſ. Summæ Baſium	21	4	23. 9643.	9. 58583627.
	Tangens Semiſſis Summæ Laterum	27	1	57. 3333.	9. 70777636.
	Tangens ½ differentiæ Laterum	2	58	2. 6666.	8. 71464305
					18. 42241941.
	Tangens ½ differentiæ Baſium	3	55	36. 0357.	8. 83658314.

H

Semi-

Semi-ſum. Baſium	gr. 21 4′ 23″.9643.	Segment. majus A D	gr. 25 0′ 0″.0000.
Semi-differ. Baſium	3 55 36. 0357.	Segment. minus A B	17 8 47. 9286.

(2.)

Proport.			
	Tangens B C	gr. 24 3 54. 6667.	9. 64991152.
	Radius gr.	90 0 0.	10. 00000000.
	Tangens A B	17 8 47. 9286.	9. 48929963.
	Coſinus C B D	46 18 7. 2720.	9. 83938811.

Probl. 12.

Si tres Anguli dentur ad Latus inveniendum, Anguli in Latera permutandi ſunt, tum fiant reliqua, ut in Caſu præcedente.

Finis Libri Trigonometriæ.

DOCTRINA SPHÆRICA.

Liber Tertius.

In quo, non ſolùm Sphæræ Circuli explicantur, ſed & eorum uſus, praxiſq; totius Sphæricæ Doctrinæ per Problemata ſequentia ſubjiciuntur; idq; quâdam novâ, peculiari & admodum compendioſâ, per *TRIGONORUM* Analyſin, ratione. Unde Longitudines, Latitudines, Declinationes, Aſcenſiones, Culminationes, Ortus, Occaſus, & Parallaxes omnium Planetarum, ad cujuſlibet *SPHÆRÆ* poſitum feſtinantèr colligi poſſint.

Cui additus eſt uſus Tabularum *PRIMI MOBILIS*, cujus auxilio, Appulſus Lunæ ad Planetas, & Calculus Eclipſium Solarium, ad aliquem Terræ locum, expeditiſſimè computantur.

Authore

VINCENTIO WING Mathematico.

Felices animæ quibus hæc cognoſcere primùm,
Inque domos ſuperas ſcandere cura fuit.

LONDINI,

Typis *J. M.* pro *G. Sawbridge* 1668.

Si vis celſi jura Tonantis
Purâ ſolers cernere mente,
Aſpice ſummi culmina Cæli,
Illic juſto fœdere rerum
Veterum ſervant ſidera pacem.
Non Sol rutilo conſitus igne
Cælidum Phœbes impedit axem.
Nec quæ ſummo vertice Mundi
Flectit rapidos Urſa meatus.
Nunquam occiduo lita profundo
Cætera cernens ſidera mergi
Cupit Oceano tingere flammas.
Semper vicibus temporis æquis
Veſper ſeras nuntiat umbras,
Redditq; diem Lucifer almus;
Sic æternos reficit curſus
Alternus amor: ſic aſtriferis
Bellum diſcors exulat oris.

Boetius Lib. 4. de conſol. Philoſ. metr. 6.

DOCTRINA SPHÆRICA.

Lib. III.

INter omnes Corporum figuras, perfectiſſima & capaciſſima, corporumq; Cœleſtium aptiſſima eſt *Sphæra*, cujus rationalem atq; artificialem Structuram *Euclides* & alii ſic oſtendunt.

SPHÆRA ab *Euclide ſic deſcribitur.*

Sphæra eſt *tranſitus* circumferentiæ dimidii circuli quæ fixa diametro eouſq; circumducitur, quouſq; ad locum ſuum redeat. Id eſt, *Sphæra* eſt tale rotundum & Solidum, quod deſcribitur ab arcu ſemicirculi circumducto.

A Theodoſio ſic.

Sphæra eſt Solidum quoddam uni ſuperficie contentum, in cujus medio Punctum eſt, à quo omnes rectæ lineæ ductæ ad circumferentiam ſunt æquales.

Materialis Sphæra εἰκών.



Nomina Punctorum & Circulorum Sphæræ.

Centrum Sphæræ quid.

1. CEntrum *Sphæræ* dicitur illud punctum in medio ejus, à quo omnes rectæ lineæ ad circumferentiam ductæ ſibi invicem ſunt æquales.

Diameter Sphæræ quid.

2. *Diameter Sphæræ* appellatur omnis recta linea, per Sphæræ centrum tranſiens, ex utrâq; parte, ſub ipſius Sphæræ ſuperficie terminata.

Axis Sphæræ quid.

3. *Axis Sphæræ* eſt linea recta tranſiens per ejus centrum ad circumferentiam ex utrâq; parte, circa quam Sphæra volvitur ac circumducitur, ut repræſentat P A P.

Poli Sphæræ quid.

4. Duo extrema puncta axem in ſuperficie terminantia, vocantur *Poli Sphæræ*, ut P P.

Superficies quid.

5. *Superficies* verò eſt latitudo profunditatis expers, duas ſolùm recipiens dimenſiones, unam ſecundum longitudinem, alteram ſecundum latitudinem.

Zenith.

6. *Zenith*, ſeu *vertex* alicujus loci eſt illud in Cœlo punctum, quod directè vertici capitis cujuſvis hominis imminet. Oppoſitum verò Punctum *Arabes* dicunt *Nadir*.

Circuli Sphæræ præcipui ſunt decem, quorum nomina ſequuntur.

Circuli Sphæræ Præcipui.

1. *Æquinoctium.*	5. *Colurus Solſtitiorum.*	9. *Circulus Arcticus.*
2. *Meridianus.*	6. *Colurus Æquinoctiorum.*	10. *Circulus Antarcticus.*
3. *Horizon.*	7. *Tropicus Cancri.*	
4. *Zodiacus.*	8. *Tropicus Capricorni.*	

Ex hiſce circulis, priores ſex majores dicuntur, poſteriores quatuor, minores. Circuli majores ſunt, qui tranſeuntes per centrum Sphæræ, ipſam dividunt in duo hemiſphæria æqualia, ſuntq; *Æquinoctialis*, *Meridianus*, *Horizon*, *Zodiacus*, *Colurus Solſtitiorum*, & *Colurus Æquinoctiorum*: Circuli minores ſunt, qui non ambientes Sphæram circa centrum, eam dividunt in duo ſegmenta inæqualia.

Æquinoctialis quid.

1. *Æquinoctialis*, *Æquidialis*, & *Æquator* dicitur ille circulus, qui ex Mundi polis per verticem capitis eſt deſcriptus, ſub eo cùm Sol exiſtat, omnibus Terræ locis Dies noctibus fiant æquales; tranſitq; hic circulus per puncta Arietis & Libræ, & Sphæram in duas partes æquales ab utroq; Mundi Polo æquidiſtantes, dividit; ut videre licet in præcedenti Schemate.

Meridianus.

2. *Meridianus*, omnibus aliis circulis ſupereminet in Sphærâ, & eſt is, qui per Polos Mundi, & verticem Capitis noſtri ducitur, ad quem quando Sol acceſſerit, eſt Meridies. In Figurâ cœleſti vocatur, *Cardo*, *Cor Cœli*, *μεσουράνιος*, *Medium Cœli*, *Cuſpis Regalis*, *Domus decima*, &c.

Horizon, Græcè ὁρίζων, Latinè Finitor dicitur.

3. *Horizon* eſt circulus major, diſtinguens conſpectam Mundi partem ab inconſpecta, & à vertice loci tanquam ex Polo deſcribitur, ſecatq; hic circulus Meridianum ad angulos rectos, & ſecundum hunc, tum Sol, Luna, & Sidera oriuntur & occidunt.

Zodiacus, quid, Eſt Ζωδιακὸς, Latinè Signifer.

4. *Zodiacus* eſt circulus ex propriis Polis deſcriptus, interſecans Æquinoctialem in duas medietates, ita ut una pars vergat ad Septentrionem, altera ad Auſtrum. Poli ejus diſtant à polis Mundi, quanta eſt maxima Solis Declinatio ab Æquatore, puta gr. 23 31′ 30″. Vocatur autem *Signifer*, hic circulus obliquus, quia in eo Motus Planetarum & Fixarum ab Occaſu in Ortum menſurantur. In medio hujus circuli collocatur. Linea Ecliptica, à quâ Latitudines Planetarum & Fixarum, tàm ad Auſtrum quàm ad Septentrionem numerantur.

Linea Ecliptica, ſeu Via Solis.

Dividitur porrò *Zodiacus* in duodecim partes, quas vocant Signa, ♈, ♉, ♊, ♋, ♌, ♍, ♎, ♏, ♐, ♑, ♒, ♓. Sic vocata ob ſimilitudinem cum animalibus, &c.

&c. Quodlibet Signum dividitur in gradus triginta, quilibet gradus in 60 minuta, quodlibet minutum in 60 ſecunda, &c.

Diviſio Zodiaci in duodecim Signa, &c.

Ordo Signorum Manilius *ſic pulchrè deſcribit.*

Aurato princeps Aries in vellere fulgens,
Reſpicit admirans adverſum ſurgere Taurum,
Submiſſo vultu Geminos, & fronte vocantem,
Quos ſequitur Cancer, Cancrum Leo, Virgo Leonem,
Æquato tum Libra die, cum tempore noctis
Attrahit ardenti fulgentem Scorpion aſtro.
In cujus caudam contentum dirigit arcum.
Mixtus equo volucrem, miſſurus jamq; ſagittam,
Tum venit Anguſto Capricornus ſidere flexus.
Poſt hunc inflexam diffundit Aquarius urnam
Piſcibus aſſuetas avidè ſubeuntibus undas,
Quos Aries tangit, claudentes ultima ſigna.

Ζώδια.

Coluri majores circuli ſunt, qui in Mundi Polis ad angulos rectos ſe mutuò biſecant, Eclipticam autem quadripartiuntur in *Æquinoctiorum*, *Solſtitiorumq;* punctis pro quadripartitâ anni diviſione. De his ita *Manilius.*

Coluri quid.

Sunt duo quos recipit ductos à vertice Vertex,
Inter ſe adverſi, qui cunctos ante-relatos,
Seq; ſecant, gemino coeuntes cardine Mundi ;
Tranſverſoq; Polo rectum ducuntur in Axem ;
Tempora Signantes anni, Cælumq; per aſtra
Quatuor in partes diviſum menſibus æquis.

5. *Colurus Æquinoctiorum* eſt ille circulus, qui ductus per mundi polos & puncta Æquinoctialia, cum Æquatore quidem angulos rectos Sphæricos, cum Zodiaco verò obliquos conſtituit.

Colurus Æquinoctiorum.

6. *Colurus* verò *Solſtitiorum* eſt ille circulus, qui ductus per polos Mundi, polos *Zodiaci*, & puncta Solſtitia, angulos format rectos Sphæricos.

Colurus Solſtitiorum.

De minoribus quatuor circulis.

τροπαί.

7. T*Ropicus Cancri* eſt ille circulus minor, quem Sol principium Cancri ingreſſus, deſcribere videtur. Cùm enim Sol ad eum circulum pervenit, Æſtatem efficit eis, qui in Aquilonis finibus ſunt, Hyemem autem eis, qui Auſtri flatibus oppoſiti. Præterea quod ultra eum circulum Sol non tranſit, ſed ſtatim revertitur, *τροπικὸς* eſt appellatus.

Tropicus Cancri quid.

8. *Tropicus Capricorni* eſt circulus ille, quem Sol in principio Capricorni conſtitutus, definit; ideoq; quando Sol ad eum circulum pervenit, Hyemem efficit his, qui ad Septentrionem ſpectant, ſed Æſtatem illis qui in partibus mundi auſtralibus domicilla conſtituerunt.

Tropicus Capricorni quid.

9. *Arcticus circulus* eſt minor, qui inter circulos ſemper apparentes eſt maximus, totuſq; ſupra terram hiſce Regionibus conſpicitur, in quo aſtra poſita, neq; occidunt neq; oriuntur, ſed per totam noctem circa Mundi Polum moveri cernuntur. *De eo* Manilius *Lib.* 1. *Aſtron. Circulus ad Boream fulgentem ſuſtinet Arcton.*

Circulus Arcticus.

10. *Antarcticus circulus* eſt ejuſdem cum Arctico naturæ, ſed qui totus infra terram deſcriptus, in quo Aſtra ſemper nobis ſunt inviſibilia.

Circulus Antarcticus.

Præter hos decem circulos ſunt pleriq; alii, ut,

1. *Circuli verticales*, qui à vertice alicujus loci deducuntur ad Horizontem, eumq; ad angulos rectos ſecantes, ex quibus metimur diſtantias Stellarum ab aliquâ Horizontis parte. Solent autem hi circuli Arabicâ voce Azimutha dici.

Circuli verticales.

2. *Cir.*

Circuli latitudinum

2. *Circuli latitudinum* ſunt ducti per polos Eclipticæ, & per puncta ejus ſingula.

Circuli Declinationum.

3 *Circuli Declinationum*, qui ducti per polos Mundi, & puncta ſingula Æquatoris.

Circuli Altitudinum.

4. *Circuli altitudinum* dicti *Almicantarath*, ii ſunt qui interſecant verticales, ipſiq; Horizonti paralleli ſumuntur, ſemper minores, minoreſq; ſunt, quouſque deſinant in vertice loci.

Circuli Poſitionum.

5. *Circuli Poſitionum* ii dicuntur, qui per ſectiones communes Horizontis & Meridiani, & per centrum Stellæ tranſeunt.

Circuli Domorum

6. *Circuli domorum*, qui dividunt Cœlum in duodecim partes, quæ vocantur Domicilla, quarum, ſex infra, ſex ſupra Horizontem ſunt. Prima domus proximè infra Horizontem ad ortum vocatur *Horoſcopus* & domus vitæ, ſuccedens inferius dicitur domus divitiarum, tertia conſequens domus Fratrum. Cæterùm de ſignificationibus domiciliorum cœleſtium teneantur hi verſus.

Vita, Lucrum, Fratres, Genitor, Nati, Valetudo,
Uxor, Mors, Pietas, Laus, fidus amicus, & Hoſtis.

Circuli horarii.

7. *Circuli horarii*, quibus ſecatur Cœlum in partes 24. &c.

Alii ſunt circuli pleriq; de quibus alibi dicturum eſt.

Longitudo Stellæ quid.

Longitudo Stellæ eſt arcus Eclipticæ, ſeu cujuſvis dati Cœli puncti, per tranſverſum Zodiacalem determinati, ab initio Arietis uſque ad circulum latitudinis Stellæ, juxta Signorum ſeriem numeratus.

Latitudo Stellæ.

Latitudo Stellæ eſt arcus circuli maximi, qui per Zodiaci polos & per centrum Stellæ incidit, interceptus inter Eclipticam & verum Stellæ locum. Si igitur Stella ad boream ab Eclipticâ vergat, Septentrionalis ejus latitudo dicitur; ſi verò ad Auſtrum, Latitudo Meridionalis.

Declinatio Stellæ quid.

Declinatio Eclipticæ maxima invariabilis.

Declinatio eſt arcus inter Stellam, vel aliqua puncta Cœli data & Æquatorem interceptus, qui arcus ſi extenderit verſus Polum Arcticum, vocatur Declinatio Septentrionalis, ſi autem verſus Polum Antarcticum, Meridionalis. Eſt autem Declinatio Eclipticæ maxima *Tychoni* gr. 23 31′ 30″, quam (noſtrâ ſententiâ) invariabilem eſſe judicavimus.

Aſcenſio Recta.

Aſcenſio Recta eſt arcus Æquatoris, qui cum dato aliquo Eclipticæ arcu ſive puncto in Sphærâ Rectâ ſupra Horizontem aſcendit. Numeratur autem per arcum Æquatoris, verno æquinoctio & aliquo determinato puncto in Æquatore interceptum.

Aſcenſio & Deſcenſio Stellæ obliqua.

Aſcenſio & Deſcenſio Stellæ obliqua, eſt arcus æquinoctialis interceptus inter vernum Æquinoctium & quodlibet datum cœli punctum Æquatoris, quod unà cum Eclipticæ puncto, vel cum datâ Stellâ ſupra Horizontem exoritur vel ſub eundem deſcendit.

Differentia Aſcenſionalis.

Differentia Aſcenſionalis aut Deſcenſionalis eſt arcus Æquatoris inter Aſcenſionem Rectam alicujus puncti, & Aſcenſionem vel Deſcenſionem obliquam dati cœli puncti interceptus.

Amplitudo ortiva.

Amplitudo Ortiva eſt arcus Horizontis inter Æquinoctialem & Ortum alicujus puncti in Cœlo dati, intercepeus.

De Zonis, Climatibus, Parallelis, &c.

Zona quid

PEr circulos Tropicos & Polares in quinque Spatia dividitur Cœlum, & ex Cœlo partes Terræ directè ad perpendiculum locis Cœli ſubjacentes, Zonas & faſcias, & à nonnullis plagas nuncupantur, quibus à locorum temperamento & qualitate, nomina veteres dedêre.

Zonæ quinque. Zona torrida. Duæ temperatæ.

Ex hiſce quinque Zonis, una inter Tropicos ſita, quam in medietate Æquator dividit, torrida à veteribus dicitur, propter intenſum Solis calorem. Sunt etiam duæ temperatæ, & totidem frigidæ; temperatæ incipiunt à Tropicis, terminanturq; in Polaribus, quæ in latitudine, ab utrâq; parte numerantur gr.

gr. 42. 57′. ſeu milliaria 2577. Frigidæ initium ſumunt à Circulis Polaribus, terminaturq; in Polis, à quibus diſtant gr. 23 31′. vel milliaria 1411. Duæ frigidæ. Zonarum Amplitudo.

Figura Zonarum, ex quâ conſtat, quomodo Zonæ terreſtres, ipſis Cæleſtibus reſpondeant.



De his Virgilius Libr. 1. Georgicon, ita canit.

Quinque tenent Cælum Zonæ, quarum una coruſco
Semper Sole rubens, & torrida ſemper ab igne:
Quàm circum extremæ dextra, lævaq; trahuntur
Cærulea glacie concretæ, atque imbribus atris.
Has inter mediamq; duæ mortalibus ægris.
Munere conceſſæ Divum, & via ſecta per ambas,
Obliquus quà ſe Signorum verteret ordo.

De Zonis terreſtribus loquitur Ovid. 1. Metamorph. in his carminibus.

Utque duæ dextrâ cælum, totidemq; ſiniſtrâ
Parte ſecant Zonæ quinta eſt ardentior illis,
Sic onus incluſum numero diſtinxit eodem
Curâ Dei, totidemq; plagæ tellure premuntur.
Quarum quæ media eſt, non eſt habitabilis æſtu:
Nix tegit alta duas: totidem inter utramq; locavit,
Temperiemq; dedit, miſta cum frigore flamma.

Amphiſcii nominantur torridæ Zonæ habitatores, qui utrinq; habent umbram meridianam diverſis anni temporibus. Amphiſcii quid?

Periſcii dicti ſunt, quorum umbra meridiana circulum facit. Periſcii.

Heteroſcii ſunt illi, qui versùs unam tantum Plagam umbras meridianas mittunt. Heteroſcii

Periæci dicuntur ii, qui degunt ſub eodem parallelo, eodem meridiano, ſed in locis oppoſitis. Periæci.

Antæci ſunt contra ſtabitabiles, quantum enim Zenith unius loci ad Septentrionem deflectit, tantum alterius verſus auſtrum. Antæci.

1 *Anti-*

Antipodes vel Ἀντίχθονες. Clima.

Antipodes ſunt, qui pedes habent ſibi mutuò oppoſitos, nempè qui habitant ſub eodem Meridiano, & locis Terræ diametralitèr oppoſitis.

Clima habitatæ *Terræ* ſpatium eſt duobus circulis Æquatori parallelis comprehenſum, in quo dies variat ſemiſſe horæ. Climata veteribus in utroq; Hemiſphærio ſunt ſeptem, *Ptolemæus* autem numerat novem in Tabulis Aſcenſionum, ſecundo *Almageſti*, quæ ſua nomina, ab aliquo inſigni urbe, fluvio, aut regione, per quæ medium Climatis tranſit, traxerunt; Clima primum per *Meroen*, *Æthiopiæ* civitatem tranſit, ubi dies longiſſimus continet horas 13. II per *Syenem Ægypti*, ubi dies longiſs. habet horas 13½. III. per *Alexandriam Ægypti*, hor. 14. IV. per *Rhodum* inſulam, hor. 14½. V. per *Romam*. hor. 15. VI. per *Pontum* hor. 15½. VII. per oſtia *Boryſthenis*, hor. 16. *Ptolemæus* facit novem Climata, ita ut VIII. fit per *Angliam*, & IX. per *Daniam* & *Scotiam*. Hiſce 9. Climatibus Septentrionalibus opponuntur 9. meridionalia, ut in Tabella vides.

Κλίματα.

	Climata Borealia.	*Climata Auſtralia.*
I.	Diameroës.	Antidiameroes.
II.	Diaſyenes.	Antidiaſyenes.
III.	Dialexandrias.	Antidialexandrias.
IV.	Diarhodu.	Antidiarhodu.
V.	Diarhomes.	Antidiarhomes.
VI.	Diapontu.	Antidiapontu.
VII.	Diaboriſthenes.	Antidiaboriſthenes.
VIII.	Diabritannias.	Antidiabritannias.
IX.	Diatanaidos.	Antidiatanaidos.

Parallelæ.

Ptolemæus ita deſcribit Parallelos, ſecundo *Almageſti*, ut eſſent utrinq; ab æquatore 38. quas hoc pacto diſtribuit, numerando 24. per quadrantes horarum, quatuor per ſemiſſes horarum, quatuor per horas integras, & deniq; Sex per integros Menſes.

Jam ſi velis ſcire, ſub quo Climate ſeu Parallelo ſitus ſit aliquis Terræ locus, adi Tabulam *Climatum*, *Parallelorum*, &c. ubi ſi quæratur Elevatio Poli, è regione occurret Clima, cum die longiſſimo, & Parallelo.

Doctrina

DOCTRINA SPHÆRICA.

Liber Tertius.

CAP. I.

ASTRONOMIÆ partes ſunt duæ, altera quidem Motus apparentes diurnos omnium Planetarum & Stellarum ab Oriente in Occidentem reſpiciens, quæ *DOCTRINA* dicitur *SPHÆRICA*: altera proprium ac realem eorum motum in contrarium ab Occaſu in Ortum, quæ *DOCTRINA* vocatur *THEORICA*; quarum primam, quam Græci *πυχθήμερον* appellant, ſive Motum diurnum tractavero, & quo modo uſitatiora Problemata Sphæræ per ſolutionem Triangulorum Sphæricorum reſolvenda ſunt, demonſtrabo, quæ à plurimis Mathematicis, eiſq; peritiſſimis, tractatas fuiſſe confeſſum habeo, viz. *Ptolemæo*, *Copernico*, *Petiſco*, *Schreckenfuchſio*, *Longomontano*, & cæteris, nihilominùs ut partes hujuſce Libri faciliùs & expeditiùs intelligantur, & ad praxim revocentur, ego præcipua tàm breviter quàm concinnè Novâ & expeditâ Methodo deponam.

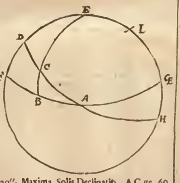
ASTRONOMIÆ diſtributio in duas partes.

Problema Primum.

Datâ Declinatione Solis maximâ, & ejus Longitudine ab alterutro Æquinoctiorum, Declinationem Solis tali Longitudini in Eclipticâ competentem invenire.

DE hoc Problemate agunt *Ptolemæus*, Lib. 1. *Magni Operis*, Cap. 13. & 14. *Copernicus* Lib. 2. Revolut. Cœleſtium, Cap. 3. *Regiomontanus* Lib. 1. Epit. Magnæ Compoſit. *Ptolemæi*, Prop. 18. *Longomont.* Cap. 1. Probl. 1. Sphæricorum, quos alii quoq; Aſtronomi ſequuntur. Quamvis autem hoc Problema variis modis expediri queat, nos tamen methodum omnium facillimam hic ſequimur.

Ut Solis Declinatio colligatur.



In adjuncto Diagrammate ſit G A B F dimidium Æquatoris, H A C D Eclipticæ, E B & E F Circulorum Declinationum, qui Æquatorem ad angulos Sphæræ rectos E B A, E F A ſecant. Sit autem E Polus Mundi, A primum punctum Arietis, D F maxima Eclipticæ obliquatio, C locus Solis, & B C Declinatio Solis inquirenda.

Proponatur Declinatio Solis exploranda in gr. 0 ♊ cum diſtat ab Æquinoctio verno, grad. 60. Ergò in Triangulo Sphærico Rectangulo A B C, quia dantur C A B gr. 23 31′ 30″. Maxima Solis Declinatio, A C gr. 60.

 Elongatio

Elongatio Solis ab Æquinoctio, A B C Angulus rectus, gr. 90. Ex hiſce itaq; datur arcus B C quæſitus, per Probl. 2. Triang. Sphæric. Rectang. hoc pacto.

Radius 90. gr.			10. 000000.
Declinatio Solis maxima, gr.	23 31′ 30″.	S.	9. 601135.
Diſtantia ⊙ ab Æquinoctio, gr.	60 0 0.	S.	9. 937530.
Declinatio Solis quæſita gr.	20 13 22.	S.	9. 538665.

Problema 2.

Datâ Obliquatione Solis maximâ, & ejus Longitudine in Eclipticâ Aſcenſionem Rectam tali longitudini indagare.

IN Schemate præcedente ſit (ut prius) A C longitudo Solis gr. 60. & Angulus C A B Maxima Eclipticæ Obliquatio, gr. 23 31′ 30″. & A B Aſcenſio recta correſpondens. In Triangulo igitur Rectangulo A B C datus A C gr. 60. 0′. cum angulo B A C gr. 23. 31′ 30″. Ergò A B erit gr. 57. 48′. 7″. Aſcenſio Recta quæſita.

De Aſcenſione Solis rectâ inveniendâ.

Per Probl. 6. Triang. Sphæric. Rectang.	*Radius gr. 90.*		10. 000000.
	A C longitudo Solis gr. 60.	t.	10. 238560.
	C A B Maxima ⊙ Obliqu. gr. 23 31′ 30″	cs.	9. 962315.
	A B Aſcenſio Solis Recta gr. 57 48′ 7″.	t.	10. 200875.

Aſcenſio Recta primi Quadrantis inventa, ad totum Circulum extenſioni ſufficit: nam ablatâ Aſcenſione rectâ primi Quadrantis modò quæſitâ è Semicirculo gr. 180. relinquitur Aſcenſio Recta ad principium Leonis, gr. 122. 11′. 53″. Adjectâ verò eâdem Aſcenſione Rectâ ad Semicirculum gr. 180. proveniet Aſcenſio Recta initii ♐ gr. 237. 48′. 7″. Rursùs ablatâ A. R. priùs inventâ ab integro Circulo gr. 360. relinquitur Aſcenſio Recta principii ♒ gr. 302. 11′ 53″. Et hoc pacto Tabula Aſcenſionum Rectarum compoſita eſt.

Problema 3.

Datâ Poli loci Elevatione & Puncti Eclipticæ Declinatione, Amplitudinem Ortivam aut Occiduam ejuſdem puncti in Horizonte, reperire.

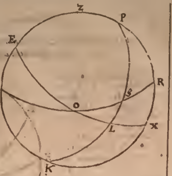
Definitio Amplitudinis Solis.

AMplitudo Solis Ortiva, Occiduave ſit arcus Horizontis interceptus inter punctum Ortûs vel Occaſûs Solis & punctum Æquatoris in Horizonte interſectum. Sciendum autem eſt, ſi Declinatio borea fuerit, Amplitudo Ortiva vel Occidua erit Borea; Sin verò Auſtrina fuerit Declinatio, Amplitudo Ortiva quoq; erit Auſtrina, ut in Exemplo enodatè demonſtrabitur.

Indagatio Amplitudinis Solis.

In

In Diagrammate adjecto ſit Meridianus integer H E Z P R X K, Horizon HOR. cujus Polus Z, Æquator verò E O X, cujus Polus P, Arcus autem O S in Horizonte, Amplitudinem Ortivam vel Occiduam repræſentet. Quamobrem in Triangulo, O L S Rectangulo, dantur Anguli S O L gr. 38. 28′. O L S gr. 90. una cum latere S L gr. 20. 13′. 22″. ergò datur O S gr. 33. 45′. 30″. pro Amplitudine Ortivâ.



Per Probl. 9. Triang. Sphæric. Obliquang.	*Altitudo Æquatoris S O L gr.*	38 28′ ″.	S. 9. 793832.
	Declinatio Solis S L gr.	20 13. 22.	S. 9. 538665
	Radius gr. 90.		10. 000000.
	Amplitudo Ortiva O S gr.	33 45. 30.	S. 9. 744833.

Problema 4.

Datâ Declinatione Solis & Obliquitate Eclipticæ maximâ, Longitudinem Solis in Eclipticâ invenire.

HOc Problema magnum præbet uſum in explorando motu Solis vero, quemadmodum luculentèr apparet in ſubſequenti Exemplo.

Sit quærenda Longitudo Solis in Eclipticâ Declinationi ejus dati competens. Hoc Problema eſt inverſio primi, ubi Declinatio maxima eſt data, & Declinatio Solis per Altitudinem Meridianam ſub certâ Poli Elevatione obſervata, ut patet in hoc Exemplo.

Quomodo locus Solis ex datâ ejus Declinatione inveniatur.

Per Probl. 9. Triang. Sphæric. Rectang.	*Obliquitas Eclip. maxima C A B*	gr. 23 31′ 30″.	S. 9. 601135.
	Radius gr. 90.		10 000000.
	Declinatio Solis data B C	gr. 20 13. 22.	S. 9. 538665.
	Longitudo Solis quæſita A C	gr. 60 0. 0.	S. 9. 937530.

In Schemate Probl. 1.

Problema 5.

Datâ Obliquitate Eclipticæ maximâ & Aſcenſione Solis rectâ, Longitudinem Solis in Eclipticâ inveſtigare.

Quomodo per Obliquitatem Eclipticæ maximam, & Aſcenſionem ☉ Rectam, locum Solis in Zodiaco poſſis inquirere.

IN eodem Triangulo Rectangulo A B C ſit (ut prius) A B Aſcenſio Solis Recta, gr. 57. 48′ 7″, C A B Obliquatio Eclipticæ maxima gr. 23 31′. 30″, & A B C Angulus Rectus, itaq; longitudo Solis A C eſt gr. 60 0′.

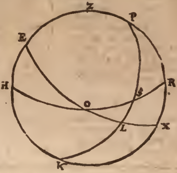
Per Probl. 10. Triang. Sphæric. Rectang.	*Radius gr. 90.*		10. 000000.
	Aſcenſio Solis Recta	gr. 57 48′ 7″. ct.	9. 799125.
	Obliquatio Eclipticæ maximo	gr. 23 31 30. ct.	9. 962315.
	Longitudo Solis quæſita	gr. 60 0 0. ct.	9. 761440.

Problema 6.

Datâ latitudine loci & Declinatione Solis, Differentiam Aſcenſionalem definire.

Pro differentiâ Aſcenſionali inveſtigandâ.

In Diagrammate appoſito ſit Meridianus P X K E, Horizon R O H, cujus Polus Z, Æquator X O E, cujus Polus P, Complementum autem latitudinis loci, S O L, & Declinatio Solis data S L. Quocirca in Triangulo OSL Rectangulo, Δεδόμενα ſunt. S O L gr. 38. 28′. Complementum Altitudinis Poli Londinenſis.



S L gr. 20 13′ 22″. Declinatio Solis ante inventa.

O L S Angulus Rectus gr. 90.

Ergò dabitur O L gr. 27. 37′ 27″, pro differentiâ Aſcenſionali.

Per Probl. 5.	*Complementum Altit. Poli*	gr. 38 28′ 0″.	t.	9. 900086.
Triang.	*Radius gr. 90.*			10. 000000.
Sphæric.	*Declinatio Solis*	gr. 20 13 22.	t.	9. 566296.
Rectang.	*Differentia Aſcenſionalis*	gr. 27 37 27.	S.	9. 666210.

Differentia ergò Aſcenſionalis eſt in tempore, Hor. 1. 50′. 30″.

Problema 7.

Datâ Aſcenſione Solis Rectâ, & Differentiâ Aſcenſionali, Obliquam Aſcenſionem, & Deſcenſionem Puncti cujuſvis Eclipticæ, ſub datâ Poli Elevatione, reperire.

Ratio inveniendi Obliquam Aſcenſionem & Deſcenſionem,

AD hoc efficiendum duæ ſubſequentes Regulæ obſervandæ ſunt.

1. Cum Declinatio eſt Borealis, ſubtrahe Aſcenſionalem Differentiam Rectâ ab Aſcenſione, & relinquitur Obliqua Aſcenſio; adde autem, & Summa erit Obliqua Deſcenſio.

2. Cum Declinatio Auſtralis eſt, adde Aſcenſionalem Differentiam & Rectam Aſcenſionem ſimul, & aggregatum Obliqua erit Aſcenſio: ſubtrahe verò Aſcenſionalem Differentiam Rectæ Aſcenſioni, & relinquitur Obliqua Deſcenſio quæſita. Exemplum. Sit quærenda Aſcenſio & Deſcenſio puncti Eclipticæ ad initium ♊, ſub Elevatione Poli LONDINI gr. 51. 32′. Primùm igitur ex Problemate Secundo, ſumatur Aſcenſio Recta, quæ reperta eſt gr. 57 48′. 7″. dein ex ultimo invenitur Differentia Aſcenſionalis gr. 27. 37′. 27″. idcircò ad Præceptum hujus Problematis, Aſcenſio & Deſcenſio Obliqua ita ſe dabunt.

Aſcenſio

		gr.	′	″.
	Aſcenſio Recta gr. o. ♊.	57	48	7.
	Differentia Aſcenſionalis	27	37	27.
Ergò provenit	*Aſcenſio Obliqua*	30	10	40.
	Deſcenſio Obliqua	85	25	34.

Problema 8.

Datâ Differentiâ Aſcenſionali, Arcum Semidiurnum & Longitudinem Diei & Noctis, ſingulis anni temporibus indagare.

De Diei atq; Noctis artificiali menſurâ.

PRimùm inveniatur Differentia Aſcenſionalis per Problema 6. quam reduc in tempus. Et ſi Sol in borealibus ſit Signis, adde eandem ſemidiurno arcui Rectæ Sphæræ, Hor. 6. Subtrahe autem eam in Signis Auſtralibus, ita enim Summa ſive differentia Semidiurnus Arcus eſt, qui conduplicatus Arcus eſt Diei, cujus Complementum ad 24. horas eſt Arcus Noctis, & hic biſectus, tempus eſt ortûs Solis, ut in hoc Exemplo videbis.

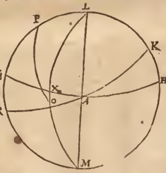
	Hor.	′	″.
Arcus Semidiurnus Sphæræ Rectæ	6	0	0.
Differentia Aſcenſionalis ☉ *in gr. o.* ♊	1	50	30.
Arcus Semidiurnus, vel tempus Occaſus Solis	7	50	30.
Qui duplicatus, dat arcum diurnum	15	41	0.
Quo tempore à Hor. 24. ſubducto, datur noctis quantitas	8	19	0.
Ac proinde tempus Ortûs Solis	4	9	30.

Problema 9.

Datâ Elevatione Poli & Declinatione Solis, momentum Crepuſculi tàm Matutini quàm Veſpertini, indagare.

De Crepuſculis.

IN adjuncto Schemate ſit Meridianus L G R K, Horizon G A H, Zenith L, Nadir M, Æquator R A K, cujus Polus arcticus P, ſitq; locus Solis O, depreſſio Solis ſub Horizonte X O, gr. 18. quum aurora omnium primo appareat. His ita conceſſis, excogitemus Solem in o. Geminorum, Ubi Declinatio ejus eſt grad. 20. 13′ 22″. borea.



Crepuſculorum termini.

In triangulo Itaque obliquangulo L P O ſint hæc cognita. (1.) P L grad. 38. 28′. Complementum elevationis *Poli Londinenſis,* (2.) X O exceſſus depreſſionis ☉ ſub Horizonte grad. 18. Supra Quadrantem, (3.) P O grad. 69. 46′ 38″. complementum declinationis Solis.

Quomodo tempus Crepuſculorum ad quamlibet latitudinem inveniatur.

PO 69° 46′ 38″. S. 9. 972367.
PL 38 28 S. 9. 793832.
Differ. 31 18 38. 19. 766199. Summa 1.
20. 000000. Summa 2.

LO gr. 108 0′ 0″. — Viz. LX + XO.
Differ. 31 18 38.
Aggreg. 139 18 38.
Differ. 76 41 22.
Semiſſis ſummæ 69 39 19. 9. 972026.
Semiſſis differ. 38 20 41. 9. 792665.
19. 764691. Summa 3.

Exemplum.

19. 766199.
20. 000000.
19. 764691.
19. 998492.

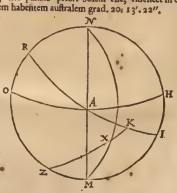
Arcus 86 37 30. S. 9. 999246. hujus duplum gr. 173 15′. eſt angulus LPO, cui reſpondent in tempore Horologii hor. 11. 33′. quibus à horis 12. ſublatis, remanent hor. 0. 27′. quod quidem eſt tempus crepuſculi quæſiti.

Aliud Exemplum.

Si quæratur tempus Crepuſculi tempore hiberno cum Sol auſtralem habet declinationem, tùm ſubtrahenda eſt quantitas depreſſionis Solis infra Horizontem à quadrante & relinquitur diſtantia *Solis* à *Nadir*, quà præcognitâ, operatio penè eadem foret, ut antè.

Supponamus igitur in oppoſito puncto priori Solem eſſe, videlicet in 0. grad. Sagittarii, declinationem habentem auſtralem grad. 20. 13′. 22″.

Aliud.



In Triangulo ZXM, pro angulo XZM δεδόμενα ſunt.

ZX *grad.* 69. 46′ 38″. *Complem. declinat. Solis.*

XM *grad.* 72. 0. *Diſtantia Solis à Nadir.*

ZM *grad.* 38. 28. *Complementum Elevationis* Poli *LONDINI.* Ex hiſce datur angulus obliquus XZM grad. 86. 13′. 52″. qui in tempus converſus dat horas 5 44′ 55″. pro primo diluculo matutino: Hinc tempus Crepuſculi veſpertini ſimilitèr datur eodem die hor. 6. 15′ 5″. quod eſt complementum prioris ad horas duodecem.

Probl.

Problema 10.

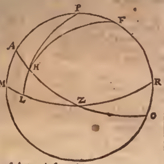
Datâ declinatione Solis, & ejus diſtantia à Meridiano, unà cum altitudine Poli, datur etiam Altitudo Solis ſupra Horizontem.

Demonſtratio ſupputationis Altitudinum Solis ad quamlibet horam & Poli elevationem.

IN hoc Problemate tres ſunt caſus.

1. *Quando Sol tenet initium Arietis aut Libræ.*

Sit in Diagrammate appoſito Meridianus integer PMRP, Æquator A Z O, cujus Polus F, Horizon M Z R, cujus Polus P, diſtantia Solis à Meridiano A H. Quocirca in Triangulo P A H dantur duo latera (1.) A H gr. 30. diſtantia Solis à Merid. (2.) A P grad. 51 32′. elevatio Poli loci, (3.) P A H angulus rectus gr. 90. ergò etiam dabitur latus P H, ejuſq; complementum, L H, quod quæſitam Solis altitudinem nobis indicat.



Ex Trigonometriâ noſtrâ operatio ſic perficietur.

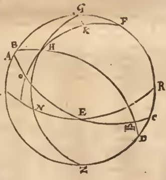
Radius 90.		10. 000000.
A H gr. 30. diſtant. ⊙ à Merid.	*cs.*	9. 937530.
A P gr. 51 32′. Elevatio Poli	*cs.*	9. 793832.
H P gr. 57 24′ 13″.	*cs.*	9. 731362.

Cujus Complementum L H grad. 32 35′ 47″. eſt altitudo Solis ad idem tempus.

2. *Quando Sol conſtituitur in Signis Zodiaci Septentrionalibus*, ♈ ♉ ♊ ♋ ♌ ♍.

Sit in adjuncto Schemate, Meridianus G L Z G, Æquator A E C, Polus F, Horizon L E R, cujus Polus G, ſitq; B H D parallelus circulus Declinationis Solis, F O meridianus Solis, B H diſtantia Solis à meridiano loci, O H Declinatio Solis borea, & F G Complementum elevationis Poli.

Sit quærenda Altitudo Solis in grad. 0 ♊, ad horas 2. pomerid. ſub Poli altitudine grad. 51 32′. quo tempore datur Declinatio Solis grad. 20. 13′. 22″. & ejus diſtantia à meridiano grad. 30. In triangulo igitur F G H habentur F G grad. 38. 28′. Complementum Elevationis Poli LONDINI, F H grad. 69. 46′ 38″. Complementum Declinat. Solis, & angulus G F H grad. 30. diſtantia Solis a Meridiano.

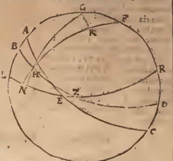


Ex hiſce δεδομένοις datur H G grad. 59. 5′ 22″. Cujus complementum N H grad. 50.54′. 38″. eſt altitudo Solis.

(1.)				(2)		
Radius grad. 90.		10.		*F K grad.* 34 31′ 47″.	*cs.*	9. 915838.
F G grad. 38 28′.	*t.*	9. 900086.		*F G grad.* 38 28.	*cs.*	9. 893745.
G F H grad. 30.	*cs.*	9. 937530.		*K H grad.* 35 14 51.	*cs.*	9. 912045.
F K grad. 34 31 47″.	*t.*	9. 837616.				19. 805790.
Ex HF gr. 69 46′ 38″.				*G H grad.* 39 5 22.	*cs.*	9. 889942.
Aufer F K gr. 34 31 47.				Cujus Complementum N H gr. 50 54′ 38″.		
Reſtat K H gr. 35 14 51.				eſt altitudo Solis ſupra Horizontem.		

3. *Quando Sol occupat Signa Zodiaci meridionalia,* ♎ ♏ ♐ ♑ ♒ ♓.

Quæratur altitudo Solis ad horas 2. P M. Sole exiſtente in loco priori oppoſito, viz. gr. o. Sagittarii.



In Trigono hujus Diagrammatis dato F G H, δεδομένα ſunt,

F G gr. 38 28′. Complementum Elevationis Poli *Londinenſis.*

F H gr. 110. 13′ 22″. Exceſſus Declinationis Solis ſupra Quadrantem.

G F H. gr. 30 o′. diſtantia Solis à Meridiano.

Ergò latus G H datur gr. 76 24′ 54″, cujus complementum H N gr. 13. 35′ 6″. eſt Altitudo Solis ſupra Horizontem.

Problema 11.

Datâ Altitudine Solis, cum ejus Declinatione & Diſtantiâ à Meridiano, datur Azimuthus Solis.

Modus inveniendi Azimuthum Solis.

A*Zimuthus Solis* à Meridie Arcus eſt Horizontis interceptus inter Meridiem & verticalem lineam Solem prætereuntem, intellectam in prioribus Diagrammatibus per angulum L G N, quo cognito, quæſtio ſit Azimuth Solis invenire in gr. o ♊, cum à Meridie 2, horas diſtat. Quocirca in Triangulo G F H prioris Schematis, dantur latera G H gr. 39. 5′ 22″, F H gr. 69. 46′ 38″. cum angulo G F H gr. 30 o. Ergò datur angulus F G H gr, 48 4′ 54″, cujus complementum H G A gr. 41 55′ 6″, eſt Azimuthus Solis à meridie.

Operatio Trigonometrica.

Complementum Altitudinis Solis G H gr. 39 5′ 22. A C.	*s.*	0: 200293.
Diſtantia Solis à Meridie, HFG gr. 30 o.	*s.*	9. 698970.
Complementum Declinat. Solis, F H gr. 69 46′ 38″.	*s.*	9. 972367.
Angulus F G H gr. 48 4′ 54″.	*s.*	9. 871630.

Complementum verò B G H, gr. 41 55′ 6″, eſt Azimuthus Solis à Meridie.

Probl.

Problema 12.

Dato Angulo horario, unà cum Poli loci Elevatione, datur Angulus Circuli horarii cum Horizonte.

IN Diagrammate adjuncto, ſit S A M S Horizon, K S M Meridianus, P Polus Mundi; repræſententur etiam Circuli horarii cum figuris Arithmeticis, 1, 2, 3, 4, 5, 6. Et deniq; ſint S 1 P, S 2 P, S 3 P, S 4 P, S 5 P, S 6 P, anguli circulorum horariorum cum Horizonte. Ratio indagandi angulum Circuli horarii cum Horizonte.

Porrò Angulus circuli horarii cum Horizonte ſic invenitur.

In triangulo P S H ad S Rectangulo, dantur Angulus S P H gr. 30 0′, & latus P S latitudo loci gr. 51 32′. Ergò *per Problema* 11. *Triang. Sphæric. Rectang.* datus erit angulus circuli horarii cum Horizonte, hoc pacto.

Per Probl. 11 Triang. Sphæricorum Rec.	*Radius gr.* 90.		10. 000000.
	Angulus Horarius S P H, *hor.* 2. *vel gr.* 30.	S.	9. 698970.
	Elevatio Poli P S *gr.* 51 32′.	ct.	9. 793832.
	Angulus horarius S H P, *gr.* 71 52′ 43″.	cs.	9. 492802.

Cui æqualis eſt A B C, vel C A.

Problema 13.

Dato Angulo horario, unà cum Elevatione Poli, Arcum inter Solem & Horizontem indagare.

IN Triangulo Sphærico Rectangulo S P H, ex datis P S gr. 51 32′, & angulo S P H gr. 30 0′, dabitur (per Probl. 10. Triang. Sphæric. Rectang.) P H gr. 55 28′ 13″. De Arcu inter Solem & Horizontem.

Illuſtratio Arithmetica.

Radius gr. 90.		10. 000000.
Latitudo loci P S gr. 51 32′.	ct.	9. 900086.
Angulus Horarius S P H gr. 30 0′.	cs.	9. 937530.
Arcus P H gr. 55 28′ 13″.	ct.	9. 837616.

Ergò Complementum H I erit gr. 34 31′ 47″. cui æqualis eſt arcus B D. Arcus verò B D auctus arcu declinat. Solis in Signis borealibus, vel diminutus arcu declinat. Solis in Signis auſtralibus, erit arcus quæſitus (qualis B e gr. 54 45′ 9″.) pro horis citra Sextam. Sed pro horis ultra Sextam, arcus declinationis Solis mulcatus, arcu horarii circuli inter Horizontem & Æquatorem comprehenſo, eſt arcus quæſitus. Ut inter hora 5. L O mulcatus arcu L 5. eſt 5 O arcus poſtulatus.

Problema 14.

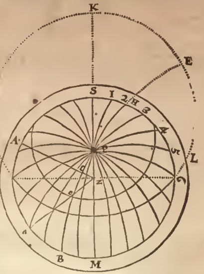
Dato itidem Angulo horario, unà cum Poli Elevatione, Amplitudines Circulorum horariorum invenire.

UT Radius, ad Tangentem circuli horarii; ita Sinus latitudinis, ad tangentem Amplitudinis. Per Prob. 4. Triang. Sphæric. Rect. De Circulorum horariorum Amplitudinibus.

Illuſtratio Arithmetica.

Radius 90.		10. 000000.
Angulus horarius S P H gr. 30 0′.	t.	9. 761439.
Latitudo loci S P gr. 51 32′.	s.	9. 893745.
Amplitudo circuli horarii S H gr. 24. 19′ 31″.	t.	9. 655184.

Hic autem notandum eſt, quòd Angulus ad horam 6. ſemper eſt æqualis latitudini loci, & arcus S 6, & 6 P ſemper ſunt quadrantes.



Tabula Angulorum & Arcuum pro Latitudine Londini *gr.* 51 32′.

	Hor. 1.			2.			3.			4.			5.		
	gr.	′	″	gr.	′	″	gr.	′	″	gr.	′	″	gr.	′	′
Anguli horar. Circulor. cum Horiz.	80	44	6	71	52	43	63	54	17	57	24	13	53	4	6
Arcus Circulorum horariorum.	37	30	12	34	31	47	29	19	36	21	39	54	11	37	11
Amplitudines Circul. horariorum.	11	50	55	24	19	31	38	3	36	53	35	46	71	6	28

Tabula

Tabula Angulorum & Arcuum pro latitudine Luſſenhamiæ *gr.* 52 40′.

Horz.	1.			2.			3.			4.			5.		
	gr.	′	″	gr.	′	″	gr.	′	″	gr.	′	″	gr.	′	″
Anguli horar. Circulor. cum Horiz.	80	58	10	72	20	55	64	36	25	58	19	5	54	8	29
Arcus Circulorum horariorum.	36	22	48	33	26	46	28	20	20	20	52	29	11	10	1
Amplitudines Circul. horariorum.	12	1	37	24	39	29	38	29	20	54	0	57	71	22	36

Methodus ſupputandi ad ſingulas horas Altitudinem Solis ſupra Horizontem ad datam alicujus Poli loci altitudinem, à Doctiſſimo Theologo & Mathematico Joanne Palmero *Eccleſiæ* Ectonenſis *in agro* Northamptonienſi *Rectore, nuper inventa, quam ex Miſcellancis, ſive Lucubrationibus Mathematicis* SAMUELIS FOSTERI *à* Johanne Twyſden *D. M. editis excerpſimus.*

Problema 15.

Dato Circuli horarii angulo cum Horizonte, ejuſdemq; Circuli arcu inter Solem & Horizontem comprehenſo, altitudinem Solis ad quamlibet Declinationem & latitudinem, invenire.

UT Radius ad Sinum anguli inter horarium circulum & Horizontem comprehenſi; ita Sinus arcûs inter Solem & Horizontem comprehenſi, ad Sinum altitudinis. *Ratio facillima ſupputandi altitudinem ☉ horariam, ad aliquem terræ locum.*

Quæratur Altitudo *Solis* ſupra Horizontem, quando habet Declinationem Septentrionalem (in gr. 0 ♊) gr. 20 13′ 22″, ad horam 2. pomeridianam.

Illuſtratio per numeros.

Ut Radius BC gr. 90.	10. 000000.
Ad Sinum A ſive ∠A gr. 71 52′ 43″.	9. 977906.
Ita Sinus Bc gr. 54 45′ 9″.	9. 912045.
Ad Sinum altitudinis ☉; *ca gr.* 50 54′ 37″.	9. 889951.

Problema 16.

Datâ Altitudine & Declinatione Solis, unà cum ejus Diſtantiâ à Meridiano, Azimuthum Solis perquirere.

OPeratio eſt planè eadem cum eâ in undecimo Problemate traditâ, nam in hoc Diagrammate repræſentet Z Zenith loci, c Solem, Zc Complementum altitudinis Solis, Pc Diſtantiam Solis à Polo, & cPZ Angulum horarium diſtantiæ Solis à Meridiano; itaq; in triangulo PcZ, dico, *Pro Azimutho Solis.*

Ut Sinus Z c gr. 39 5′ 23″, ad Sinum anguli Z P c gr. 30. Ita Sinus P c gr. 69 46′ 38″. ad Sinum anguli P Z c gr. 48 4′ 53″, cujus Complementum a Z M gr. 41 55′ 7″. eſt Azimuthus Solis à Meridie, ut ante inventus in Probl. 11.

Problema 17.

Datâ altitudine Solis per quodvis Inſtrumentum unà cum Declinatione Solis, & Poli loci altitudine, Horam Diei inveſtigare.

Modus inveniendi Horam Diei, ſub qualibet Poli Elevatione.

ASSumamus hic Schema antecedens à *Johanne Palmero Eſtonenſi* excogitatum, in quo ſit P Polus Mundi, Z Zenith loci, c locus Solis, ut ante diximus. Sintq; in Triangulo P Z c hæc cognita.

1. Z c Complementum Altitudinis Solis gr. 39 5′ 23″.
2. Z P Complementum latitudinis loci gr. 38 28.
3. P c Complementum Declinat. Solis gr. 69 46 38.

Ergò per *Penult. Triang. Sphæric. Obliquang.* datur Angulus Z P c gr. 30. qui arcus in horas converſus, juxta ea quæ in libro 5. traduntur, oſtendit tempus Meridie, hor. 2 0′.

Illuſtratio Arithmetica.

Ut Tangens ſemiſſis Summæ Baſium P c gr. 34 53′ 19″.	9. 843429.
Ad Tangentem ſemiſſis Summæ Z P ct. Z c gr. 38 36′ 41″.	9. 904926.
Ita Tangens ſemiſs. differentiæ Z P & Z c gr. 0 18 41.	7. 735184.
	17. 640110.
Ad Tangentem differentiæ C c & C P gr. 0 21′. 32″.	7. 796681.

Semiſſis P c gr. 34 53′ 19″. } Segmentum majus c C gr. 35 14′ 51″.
Differentia Baſ. gr. 0 21 32. } Segmentum minus C P gr. 34 31 47.

Tum in Triangulo Sphærico Rectangulo Z C P aio,

Ut Tangens P Z gr. 38 28′	9. 900086.
Ad Radium gr. 90.	10. 000000.
Ita Tangens P C gr. 34 31′ 47″.	9. 837617.
Ad Coſinum anguli C P Z gr. 30 0′.	9. 937531.

Problema 18.

Dato Solis Azimutho, cum ejus Altitudine & Declinatione Horam Diei invenire.

RATIO ALIA. Pro Horæ diei indagatione.

UT Coſinus declinationis Solis, ad Coſinum Azimuthi ⊙, Ita Coſinus Altitudinis, ad Sinum arcûs horarii.

Illuſtratio.

Ut Sinus Complementi Declinat. Solis P c. gr. 69 46′ 38″.	9. 972367.
Ad Sinum Complementi Azimuthi ⊙ gr. 48 4′ 53″.	9. 871627.
Ita Sinus Compl. Altitudinis Solis gr. 39 5′ 23″.	9. 799710.
	19. 671337.
Ad Sinum Anguli horarii Z P C gr. 30 0′, ut anteà.	9. 698970.

Probl.

Problema 19.

Datâ Aſcenſione Solis Rectâ, unà cum Aſcenſione Rectâ cujuſcunq; Stellæ per Meridianum tranſeuntis, tempus noctis reperire.

Perficitur hoc Problema abſq; triangulorum ope; Subtractâ enim Aſcenſione Rectâ Solis ab Aſcenſione Rectâ Stellæ, relinquitur arcus horarius inter Solem & Stellam interceptus, qui in tempus converſus, oſtendit horas & minuta quæſita.

Quomodo tempus noctis inveniatur per Stellas Meridianum tranſeuntes.

Exempli gratiâ. Quæratur tempus noctis è tranſitu *Aldebaran* per Meridianum ad diem 1. *Decembris*, anno Chriſti 1661. & tunc *Sol* in *Ephemeride noſtrâ* hujus anni eſt in gr. 20 1′ 59″ ♐, ergò per *Probl.* 2. *Cap.* 1. hujus, vel ex tabula Aſcenſionum Rectarum, inventa eſt Aſcenſio Recta Solis gr. 259 9′, & quia *Aldebaran* hæret in gr. 5 3′. ♊, cum latitudine gr. 5 31. A. Aſcenſio ejus Recta conſtat ex tabula Aſcenſionum Rectárum gr. 64 9′, ſubtractâ igitur illâ ab hâc (priùs addito completo circulo gr. 360.) relinquitur arcus inter Solem & Stellam interceptus gr. 165 0′, qui oſtendit hor. 11 0′. pro tempore noctis vero.

Exemplum.

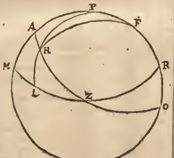
Problema 20.

Datâ Altitudine Stellæ obſervatâ, unà cum Aſcenſione ejus Rectâ, & Declinatione, ac inſuper Aſcenſione Rectâ Solis, tempus Noctis depromere.

Anno Chriſti 1628. *Januarii* die 10. veſperi, *Johannes Bainbridgius* obſervavit *Oxonii* Eclipſin Lunæ totalem, & ad exactè inquirendum tempus totalis emerſionis; cœpit per Quadratum Geometricum, altitudinem Cordis ♌, in plagâ orientali gr. 40 16′. Quo tempore erat Sol in gr. 0 30′. 33″ ♒.

Quomodo hora Noctis reperiatur per Altitudinem Stellæ obſervatam.

Datur ad hoc tempus per Probl. 2. Cap. 1. hujus, Aſcenſio Recta Solis gr. 302 43′ 40″. Longitudo Cordis ♌ in gr. 24 39′ 26″ ♌, Latitudo gr. 0. 26′ 30″. Borea, quare etiam invenitur Declinatio ejus gr. 13 46′, & Aſcenſio Recta gr. 147 7′.



In adſcripto Schemate ſit R F P M Meridianus, R Z M Horizon, O Z A Ecliptica, H locus Stellæ. F Mundi polus, P Zenith. Quocirca in Triangulo P F H dantur omnia latera, (1.) P F Complementum latitudinis *Oxonii* gr. 38 14′. (2) F H Complementum Declinat. Stellæ gr. 76 14′. (3.) P H Complementum altitudinis gr. 49 44′. Hinc per *Probl.* 11. *Triang. Sphæric. Obliquang.* dabitur angulus H F P gr. 40 9′ 12″.

Exemplum.

Ablato autem hoc angulo ab Aſcenſione Recta Cordis ♌ gr. 147 7′, relinquitur A. R. Medii Cœli gr. 106. 57′ 48″. ex quibus ſi auferatur Aſcenſio Solis Recta (toto circulo priùs addito) gr. 302 43′ 40″,

remanet

remanet arcus inter medium Cœli & Solem gr. 164 14′ 8″, qui in horas & minuta converſus, dat tempus à meridie, hor. 10 56′ 57″.

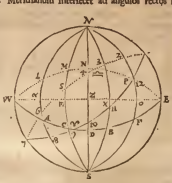
Problema 21.

Dato tempore Diei & Elevatione Poli, Cuſpides 12. Domiciliorum Cœleſtium in Eclipticâ, juxta modum rationalem* Jo. Regiomontani *reperire.

De Erectione Thematum Cœli juxta modum rationalem.

QUamvis veteres Aſtrologi (viz. *Julius Firmicus, Campanus & Gazulus, Porphirius, Avenefra & Regiomontanus*) quinque eaſq; diverſas methodos Cœleſtis Figuræ erigendæ commenti ſunt, nihilominus nunc temporis doctrina *Regiomontani* veluti rationalior & obſervationi convenientior imbibitur, quapropter (cæteris omiſſis) huic demonſtrationem noſtram applicabimus, ubi Æquator in 12. æquales partes dividitur, per ſex magnos circulos per mutuas ſectiones Meridiei & Horizontis ductos, cujus intervallum in Æquatore 30. gradus eſſe computatur, in quibus duo præcipui & principales ſunt *Meridies* & *Horizon*, per quos Cœlum in 4. Quadrantalia diviſum eſt, quorum unuſquiſque rurſus dividitur in tres partes æquales, quæ Zodiacum in partes inæquales ſecant, velut ſequenti Figurâ evincitur.

In Diagrammate appoſito ſit Meridianus N Z S, linea W Z E orientalis & occidentalis Azimuth, quæ Meridianum interſecet ad angulos rectos in puncto Zenith Z. Quinetiam eſto Horizon loci N W S E, dimidium Æquatoris ſupra terram W D E, pars altera infra eam W N E. Præterea arcus 7. ♈ 1. repræſentat dimidium Eclipticæ ſupra Horizontem, 7 ♎ 1. dimidium illud infra eum, ſitq; interſectio Meridiani & Horizontis borea N, Sectio autem Auſtrina S, & ab hiſce punctis tranſeunt arci, vel circuli Poſitionum per Æquatorem, perſtringentes eum in 12. æquales partes, quarum unuſquiſque complectitur gradus 30. & ubi Eclipticam interſecant, Domiciliorum cuſpides ſignentur.



Hoc præmiſſo, proximo loco, priuſquam Figuram erigamus, demonſtrare oportet uniuſcujuſq; domi aſcenſionem reperire. Primùm itaq; Rectam Solis Aſcenſionem inveniendam eſſe per *Probl.* 2. cui tempus pomeridianum addito in gradus & minuta reductum, & ſumma eſt Recta Aſcenſio Medii Cœli, ſeu decimæ domûs, ad quam ſi addantur gradus 30. Aſcenſionem undecimæ domi dat. Rurſus Aſcenſioni 11. domûs adde grad. 30. & Aſcenſio duodecimæ domi invenitur, & ſic per continuam additionem 30. graduum, Aſcenſiones ſingularum celerrimè habeantur. Denuò ad inveſtigationem angulorum, quos circuli Poſitionum faciunt cum Æquatore ad F & B, obſervandum ibi eſt, quod in Triangulo E O F, angulus ad E datur, & Latus E F, à quibus angulus ad F inveniatur. Eodem modo in Orthogonio E X B, angulus ad E, & latus E B habentur, ad inveniendum angulum ad B.

Aſcenſiones Domiciliorum.

Supponamus erigendam eſſe Figuram Cœleſtem die 25 *Junii* ad hor. 6.

tempore

tempore matutino, in Horizonte *LONDINI*, quo momento verus locus Solis eſt grad. 13. 26. 10. Cancri, & ejus recta Aſcenſio grad. 104 36′ 14″. cui ſi addatur tempus pomeridianum in gradibus æquatoris converſum grad. 270. 0′. proveniet Aſcenſio recta Medii Cœli gr. 14. 36′ 14″. (circulo 360° rejecto) hinc dantur Aſcenſiones obliquæ cæterorum domiciliorum in hunc modum.

Do.	Aſcenſiones.			Dom.	Aſcenſiones.
8	314° 36′ 14″.	♈ A	Compl. 45° 23′ 46″.	2	134° 36′ 14″.
9	344 36 14.	♈ C	Compl. 15 23 46.	3	164 36 14.
10	14 36 14.	♈ D		4	194 36 14.
11	44 36 14.	♈ B		5	224 36 14.
12	74 36 14.	♈ F		6	254 36 14.
Aſc.	104 36 14.	♈ C		7	284 36 14.

Priuſquam erigamus Figuram, angulos acquirere oportet, quem Circuli Poſitionum 12. & 11. domiciliorum cum Æquatore faciunt, quarum illic angulo E F O. hic verò E B X repræſentatur, quibus æquales ſunt anguli W A ♉ & W C ♐. De Circulis Poſitionum, & eorum angulis cum Æquatore inveſtigandis.

In Orthogonio itaque E O F datur angulus O E F grad. 51 32′. elevatio Poli loci, cum latere E F grad. 30. ergò habetur E F O gr. 42 31′ 59″. cui æqualis eſt angulus E P O & W A ♉.

Eodem modo in Trigono E B X habetur angulus X E B grad. 51 32′. cum latere E B gr. 60. hinc datur angulus E B X grad. 57 48′ 58″. (qui angulo W C ♐ æqualis eſt) cujus complementum ♈ B H eſt gr. 122 11′ 2″. Hiſce ita inventis praxis reliqua erit pro inquiſitione cuſpidum domiciliorum.

1. Pro cuſpide octavæ domus.

In triangulo ♈ A 8. habentur ♈ A gr. 45 23′ 46″, ♈ A 8. gr. 42 31′ 59″. A ♈ 8. gr. 23 31′ 30″. ergò datur ♈ 8 gr. 33 25′ 13″. per operationem ſequent. Inquiſitio Cuſpidum Domiciliorum.

1.	*Semiſſis Summæ angul.* ad ♈ & A	gr. 33 1′ 44″.	s.	Ar.co.	0. 263554.
	Semiſſis differentiæ	gr. 9 30 14.	s.		9. 217785.
	Semiſſis lateris comprehenſi ♈ A	gr. 22 41 53.	t.		9. 621456.
	Semiſ. differ. reliquorum laterum	gr. 7 13 16.	t.		9. 102795.

Per Probl. 9 Triang. Sphæric. Obliquang.

2.	*Semiſſis Summæ angulorum*	gr. 33 1′ 44″.	cs.	0. 076551.
	Semiſſis differentiæ	gr. 9 30 14.	cs.	9. 993997.
	Semiſſis lateris comprehenſi	gr. 22 41 53.	t.	9. 621456.
	Semiſſis Summæ laterum	gr. 26 11 57.	t.	9. 692004.

gr. 26 11′ 57″.	Semiſſis Summæ lat.	à Circulo	gr. 360 0′ 0″.
gr. 7 13 16.	Semiſ. differentiæ lat.	aufer.	gr. 33 25 13.
gr. 33 25 13.	Latus ♈ 8.	Reſtat.	326 34 47.

Ergò Cuſpis Octavæ domus cadit in grad. 26 34′ 47″. ♒.

2. Pro cuſpide nonæ domus.

Eodem prorſus modo Cuſpidem nonæ domus acquirimus; nam in Triangulo ♈ C 9. quærendum eſt latus ♈ 9.

Δεδομένα ſunt:
- ♈ C 15° 23′ 46″. *Complementum Aſcenſ. obliquæ 9. domus.*
- ♈ C 9 57 48 58. *Angulus circuli Poſitionis cum æquatore.*
- 9 ♈ C 23 31 30. *Obliquatio Eclipticæ.*

Ergò datur ♈ 9. grad. 13 9′ 49″. quod ſi ſubducatur à Circulo gr. 360. relinquit cuſpidem nonæ domûs in gr. 16 50′ 11″ ♓.

3. *Pro cuſpide decimæ domus.*

In Triangulo ♈ D 10. cogniti ſunt anguli 10. ♈ D grad. 23 31′ 30″. ♈ D 10. gr. 90. unà cum latere incluſo D ♈ gr. 14 36′ 14″. ergò innoteſcet latus ♈ 10. grad. 15 51′ 49″.

Illuſtratio Trigonometrica.

διδόμενα ſunt:
Radius gr. 90. — 10.
D ♈ *gr.* 14 36′ 14″. *Aſcenſio Recta* 10. *domus.* ct. 10. 584103.
10. ♈ *D gr.* 23 31 30. *Obliquit. Ecliptica maxima* ct. 9. 962315.
♈ 10. *gr.* 15 51 49. *Elongat. cuſpid.* 10. *dom.* à 0 ♈ ct. 10. 546418.

4. *Pro cuſpide undecimæ domus.*

In Triangulo ♈ B 11 pro latere ♈ 11.
διδόμενα ſunt:
♈ *B* 11 *gr.* 122 11 2. *angulus quem facit Circulus poſitionis cum æquatore*
B ♈ 11 *gr.* 23 31 30. *obliquatio Ecliptica maxima.*
♈ *B gr.* 44 36 14. *aſcenſio obliqua* 11. *domus.*

Ergò habetur latus ♈. 11. grad. 60 14′ 2″, quod oſtendit cuſpidem undecimæ domûs quæſitam in gr. 0 14′ 2″. ♊.

5. *Pro cuſpide duodecimæ domus.*

Nec diſſimili inductione Cuſpidem duodecimæ domus reperitur, nam in Triangulo obliquangulo ♈ FO quoniam
διδόμενα ſunt:
A F 12. *gr* 137 28′ 1″. *Angulus circuli Poſitionis cum æquatore.*
F ♈ 12. *gr.* 23 31 30. *Obliquitas Ecliptica maxima.*
♈ *F gr.* 74 36 14. *Diſtantia in æquatore ab æquinoctio.*

Ergò datur latus ♈ 12. quæſitum gr. 101 14′ 36″. Quapropter Cuſpis duodecimæ domus incidit in grad. 11 14′ 36″. dodecatemorii ♋.

Denique pro cuſpide Aſcendentis.

In Triangulo ♈ E 1. habentur anguli ♈ E 1. grad. 141. 32′. exceſſus latitudinis loci ſupra Quadrantem, E ♈ 1. gr. 23 31′ 30″. Obliquitas Eclipticæ cum latere ♈ E gr. 104. 36′ 14″. Ergò datur ♈ 1 grad. 127 9′ 53″. quod eſt elongatio primæ domus à vero verno Æquinoctio, ideoq; cuſpis Aſcendentis, ſeu primæ domus erit in gr 7 9′ 53″. ♌.

Jam ſi oppoſitæ domus ex oppoſitis conſtituantur ſignis, ſingulæ domus ſic ſe habent.

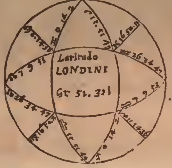
	Sig.	gr.	′	″.
Octava	♒	26	34	47.
Nona	♓	16	50	11.
Decima	♈	15	51	49.
Undecima	♊	0	14	2,
Duodecima	♋	11	14	36.
Prima	♌	7	9	53.

Ex quibus reliquæ domus his oppoſitæ ita ſe habent.

	Sig.	gr.	′	″.
Secunda	♌	26	34	47.
Tertia	♍	16	50	11.
Quarta	♎	15	51	49.
Quinta	♐	0	14	2.
Sexta	♑	11	14	36.
Septima	♒	7	9	53.

Figura

Figura Cœli juxta modum Regiomontani *Rationalem.*



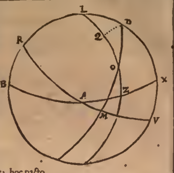
Caput Secundum.

IN Capite præcedenti de præcipuis Problematibus Solem reſpicientibus breviter differui, quæ frequentiora ac uſitatiora ſunt praxi Matheſeos; hæc autem ſubſequentia rariora ſunt, immò & jucundiora prioribus, (ut ita dicam) conveniuntq; tàm *Lunæ*, *Planetis*, *Cometis*, *fixiſq;* *Stellis*, quæ latitudinem habent ab Ecliptica, quàm Soli, qui in eâ verti videtur; inſertaq; ſunt illorum gratiâ, qui ſtudioſiùs Obſervationes Cœleſtium Corporum Inſtrumento facere deſiderant, ut hâc operâ, loca eorum vera in Cœlis ſecundum Longitudinem & Latitudinem inveniant, quæ cum neceſſariis aliquibus Propoſitionibus hìc inſeram.

Problema 1.

Datâ Longitudine & Latitudine alicujus Stellæ aut Planetæ, unà cum Obliquitate Eclipticæ maximâ, ejuſdem Declinationem & Aſcenſionem Rectam venari.

UT autem hæc Doctrina per veſtigandi Stellarum Declinationem & Aſcenſionem Rectam à Longitudine & Latitudine datâ, & Longitudinem ac Latitudinem è Declinatione & Aſcenſione Rectâ, *Aſtrophilo* fiat jucundior, placet huic Problemati apponere Exemplum, ex quo ille ad hoſce labores faciliùs progrediatur. Modus inveſtigandi Declinationem & Aſcenſionem rectam alicujus Stellæ, aut Planetæ.



In adjuncto Diagrammate repræſentet ☉ locum Stellæ cujus Longitudo data ſit arcus A Z, Latitudo Z O, Declinatio M O, & Aſcenſio recta A M.

Sit eruenda Declinatio mediæ & lucidæ Pleiadum, cum Aſcenſione ejus rectâ ad annum Chriſti 1665. *Jan.* 1. quo tempore Longitudo ejuſdem Stellæ data eſt gr. 25 17′ 33″. ♉.

Latitudo verò grad. 4. o′. borea. Quibus præſuppoſitis facilè poſſint inveſtigari ejuſdem Declinatio & Aſcenſio Recta, hoc pacto.

1.	*D L* 23° 31′ 30″. *Obliquitas Ecliptica.*	*ct.*	10. 361180.
	Radius gr. 90.		10.
	DLO gr. 34 42′ 27″. *Compl. Longit. Stellæ ad gr.* 90.	*cs.*	9. 914908.
	L Q gr. 19 41 27.	*t.*	9. 553728.

Ex LO gr. 86 o′. aufero L Q gr. 19 41′ 27″. & relinquit Q O gr. 66 18′ 33″.

2.	*L Q gr.* 19 41′ 27″. *arcus antè inventus.*	*cs.*	9. 973831.
	L D gr. 23 31 30. *Ecliptica obliquatio.*	*cs.*	9. 962315.
	QO gr. 66 18 33. *arcus alter nuper inventus:*	*cs.*	9. 604012.
			19. 566327.
	D O gr. 66 57 55. *Complementum Declinationis Stellæ*	*cs.*	9. 592496.

Ergò datur M O gr. 23 2′ 5″. Declinatio quæſita.

2. *Pro Aſcenſione Rectâ.*

In eodem Triangulo L D O, omnia tria latera ſunt cognita, 1. D L gr. 23 31′ 30″.

2. D O gr. 66 57′ 55″. Complementum Declinationis Stellæ.

3. L O gr. 86 o. Complementum latitudinis; Ergò etiam datur angulus L D O. gr. 141 53′ 18″.

Operatio.

Summa 3. *laterum.*	gr. 176 29′ 25″.		
Semiſſis Summæ	88 14 42.	s. 9. 999796.	18. 592778.
Dif. 1. *Baſis L O & ½ Summæ*	2 14 42.	s. 8. 592982.	
Dif. 2. *lateris D O & ½ Sum.*	21 16 47.	s. 9. 559813.	19. 516093.
Dif. 3. *lateris D L & ½ Sum.*	64 43 12.	s. 9. 956280.	
		Logarith. Radii duplicatus	20.
		Sum.	39. 516093.
			18 592778.
gr. ′ ″.		*Differentia.*	20. 923315.
70 56 39. *dat arcus.*		*Semiſſis differentiæ.*	10. 461657.

Hujus arcûs duplum gr. 141. 53′ 18″. eſt angulus quæſitus L D O, in æquatore verò à Solſtitio hiberno numeratus, qui repræſentatur per arcum R M, ſubducto itaque Quadrante gr. 90 à dicto arcu, relinquitur gr. 51 53′ 18″. Aſcenſio Recta & *lucida Pleiadum* quæſita.

Probl.

Problema 2.

Datâ Declinatione & Aſcenſione Rectâ, Longitudinem & Latitudinem reperire.

HOc Problema eſt prioris converſio, ut infra apparebit, nam in Triangulo dato Diagrammatis oblati, dantur latera D O gr. 66 57′ 55″. Complementum Declinationis Stellæ D L gr. 23 31′ 30″. Obliquitas Eclipticæ, cum angulo comprehenſo O D L gr. 141 53′ 18″. hinc datur L O grad. 86 0′. Complementum latitudinis, & D L O gr. 34 42′ 25″. cujus complementum ad Quadrantem gr. 55 17′ 35″. eſt Longitudo à o gr. ♈. Pro longitudine & latitudine Stellæ.

Radius gr. 90.		10.	
D L gr. 23 31′ 30″.	t.	9. 638820.	
L D O gr. 141 53 18	cs.	9. 895870.	
Segm. 1. 18 54 27.	t.	9. 534690.	à gr. 66 57′ 55″.
			adde 18 54 27.
Segment. 1. gr. 18 54′ 27″. ar.	c.	0. 024090.	Sum. 85 52 22.
D L gr. 23 31′. 30″.	cs.	9. 962315.	
Sum. gr. 85 52 22.	cs.	8. 857160	
L O gr. 86 0 0.	cs.	8. 843565	

Ergò datur Latitudo Stellæ grad. 4. 0′.

2. *Pro Longitudine.*

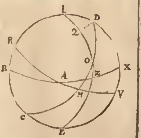
L O grad. 86 0′. *Complementum latitudinis*	ar. co. s.	0. 001059.
L D O gr. 141 53′ 18″. *Aſcenſ. Recta à Solſtitio hiberno.*	s.	9. 79 423.
D O gr. 66 57. 55. *Compl. Declinationis.*	s.	9. 963915.
D L O gr. 34 42 24. *Compl. Longit. ad Quadrantem.*	s.	9. 755397.

Compl. A Z gr. 55 17 36. eſt Longitudo Stellæ à o ♈, ergò locus mediæ & lucidæ Pleiadum cadit in gr. 25 17′ 36″ ♉, ut priùs ex *Tabulis noſtris* computatur.

Problema 3.

Datâ Longitudine & Declinatione Stellæ, Latitudinem & Aſcenſionem ejus Rectam acquirere.

1. *Pro Latitudine.*



IN eodem Diagrammate hic retento datur L B E X Colurus Solſtitiorum, R A ♈ Æquator, B A X arcus Eclipticæ, D & C Poli æquatoris, L & E Poli Eclipticæ, O locus Stellæ, A Z ejus Longitudo, Z O Latitudo, & O M Declinatio. Pro latitudine & Aſcenſione Rectâ.

In Triangulo D L O dantur, D L gr. 23 31′ 30″. obliquitas Eclipticæ.

D O gr. 66 57′ 55″. Complementum Declinationis lucidæ Pleiadum.

D L O gr. 34 42′ 24″. Complementum Longitudinis Stellæ ad Quadrantem.

Ergò habetur O L gr. 86 0′. Complementum latitudinis.

Illuſtratio

Illuſtratio per numeros.

1.				2.		
Radius gr. 90.		10.		*DL gr.* 23 31′ 30″.	*cs. ar. co.*	0. 03769.
D L gr. 23 31′ 30″.	*t.*	9. 63882.		*L Q gr.* 19 41 27.	*cs.*	9. 97383.
D L O gr. 34 42 24.	*cs.*	9. 91491.		*D O gr.* 66 57 55.	*cs.*	9. 59249.
L Q gr. 19 41 27.	*t.*	9. 55373.		*Q O gr.* 66 18 33.	*cs.*	9. 60401.

Segmentum. { 1. gr. 19 41′ 27″. 2. gr. 66 18 33.

Ergò datur L O gr. 86 0 0. Complementum Latitudinis.

2. *Pro Aſcenſione Rectâ.*

Ad inveniendam Aſcenſionem Rectam, hæc ſunt data.
1. O L gr. 86 0′ Complementum Latitudinis.
2. L D gr. 23 31′ 30″. Eclipticæ obliquitas.
3. DLO gr. 34 42 24. Complementum Longitudinis ad Quadrantem.
Ergò datur Angulus L D O gr. 141 53′ 18″. à quo ſubducatur gr. 90. & relinquit Aſcenſionem Rectam gr. 51 53′ 18″.
Operatio verò hic non ponitur, cum planè eadem ſit eâ in Problemate primo hujus Cap. traditâ.

Problema 4.

Datam Aſcenſionem Rectam & Longitudinem, in Latitudinem & Declinationem convertere.

Pro latitudine & Declinatione.

IN eodem Triangulo L D O dantur Anguli L D O gr. 141 53′ 18″. Aſcenſio recta à Solſtitio hiberno numerata, D L O gr. 34 42′ 24″. Compl. longitudinis ad Quadrantem, cum latere D L gr. 23 31′ 30″. Obliquit. Eclipticæ maxima.

1. *Pro Complemento Latitudinis L O.*

Semiſſis Summæ angulor. ad L & D.	gr. 88 17′ 51″.	ar. co. s.	0. 00019.	ar. co.	cs.	1. 52710.
Semiſſis differentiæ	gr. 53 35 27. ...	s.	9. 90568.	....	cs.	9. 77345.
Semiſ. lateris incluſi L D	gr. 11 45 45.	t.	9. 31854.	....	t.	9. 31854.
Semiſ. differ. reliquorum lat.	gr. 9 31 2.	t.	9. 22441.	gr. 76 29 0.	t.	10. 61909.
Semiſ. Summæ laterum ad.	76 29 0.			Semiſſis Summæ laterum.		
Latus L O	86 0 2.			quod eſt complementum Latitudinis.		

2. *Pro Complemento Declinat. D O.*

L D O gr. 141 53′ 18″.	*Aſcenſio recta à Solſtitio hiberno ar. co.*	*s.*	0. 209577.
L O gr. 86 0.	*Complementum Latit. Stellæ.*	*s.*	9. 998941.
D L O gr. 34 42 24	*Compl. longitudinis ad Quadrantem.*	*s.*	9. 755398.
D O gr. 66 57 56.	*Complementum Declinat. Stellæ.*	*s.*	9. 963916.

Probl.

Problema 5.

Datâ Latitudine & Declinatione, Longitudinem & Aſcenſionem rectam reperire.

HOc Problema eſt converſio prioris, nam in Triangulo D L O dantur Latus L O grad. 86 0′. Complementum Latitudinis Stellæ. *(Pro longitudine & Aſcenſione Rectâ.)*

O D gr. 66 57′ 56″. Complementum Declinationis.

D L gr. 23 31 30. Obliquatio Ecliptica.

Ergò dantur { D L O gr. 34 42′ 24″. Compl. longitudinis ad Quadrantem.
{ L D O gr. 141 53 18. Rect. Aſcenſio à Solſtitio hiberno.

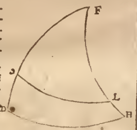
Operatio erit eadem cum eâ in Problemate 1.

Problema 6.

Datâ altitudine meridianâ & Diſtantiâ Planetæ, vel ignoti ſideris novi ab aliquâ fixarum, ignoti Longitudinem & Latitudinem perſcrutari.

HUnc modum indagandi longitudinem & latitudinem Stellæ excogitavit nobilis ille *Tycho*, eumq; paſſim proponit, *Lib.* 1. *Progymnaſm. Aſtron. pag.* 157. & 192. necnon Lib. 2. pag. 27. Et quoniam ſit omnium evidentiſſimus, nec lapſui facilè obnoxius, operæ-pretium erit ſi methodum calculi oſtenderimus, itaq; accipiemus obſervationem à *D. Tychone* factam, qui diſtantiam Stellulæ in Pectore *Pegaſi*, quæ eſt duarum borealior, à lucida vulturis ſub finem anni 1577. accipit gr. 45 31′. declinationemq; ejus ex altitudine meridianâ ad idem tempus, gr. 22 26′. boream, quibus præcognitis, cum declinatione lucidæ vulturis, Longitudo & Latitudo hujus Stellulæ in hunc modum inquiruntur. *(Quomodo Longitudo & Latitudo Planetæ, vel ignoti Sideris novi colligantur. Obſervatio Tychonis Brahæi.)*

Primùm itaq; in Triangulo F O L dantur omnia tria latera F L Complementum Declinationis lucidæ *Vulturis*, gr. 82 8′. F O Complementum declinationis Stellæ in pectore *Pegaſi* gr. 67. 34′. O L diſtantia utriuſq; Stellæ gr. 45 31′. Ergò per *Cap.* 6. *Prob.* 11. *Trigonometriæ noſtræ* inveniatur Angulus L F O, qui menſurat arcum D H differentiam Aſcenſionis Rectæ. Res ita perficitur. *(Modus primus inveniendi locum Stellæ, per Obſervationem.)*



Latera { F O	gr.	67	34′	0″.
{ O L	gr.	45	31	0.
Baſis F L	gr.	82	8	0.
Summa Laterum		113	5	0,
Differentia Laterum		22	3	0.
Semiſſis ſummæ Laterum		56	32	30.
Semiſſis Differentiæ laterum		11	1	30.
Semiſſis Summæ Baſium		41	4	0.

(Πράξις.)

1. Tan.

1.	*Tangens ſemiſſis Summæ Baſis*	41° 4′ 0″.	9. 940183.
	Tangens ſemiſſis ſummæ Laterum	56 32 30.	10. 179903.
	Tangens ſemiſſis differentiæ Laterum	11 1 30.	9. 289663.
			19. 469566.
	Tangens ½ differentiæ Baſium	18° 41′ 38″.	9. 529383.

Semi-Summa Baſium gr. 41 4′ 0″. } Segmentum majus gr. 59 45′ 38″.
Semi-differentia Baſium gr. 18 41 38. } Segmentum minus gr. 22 22 22.

2.	*Radius gr. 90.*	10. 000000.
	Co-tangens F O gr. 67 34′.	9. 615793.
	Tangens F a gr. 59 45′ 38″.	10. 234379.
	Coſinus anguli quæſiti O F L gr. 44 54′ 33″.	9. 850172.

Addito autem hoc angulo O F L = arcui D H gr. 44 54′ 33″. Aſcenſioni rectæ Vulturis gr. 292. 35′. eò quòd hæc Stellula in Pectore Pegaſi ſit orientalior & promotior lucidâ Vulturis, emergit Aſcenſio Recta Stellæ gr. 337 29′ 33″. Poſtremò, datâ declinatione hujus Stellulæ gr. 22 26′. borea, & Aſcenſione Rectâ gr. 337. 29′ 33″. invenitur per Prob 2. longitudo hujus Stellæ in Pectore Pegaſi in gr. 18 36′ 18″ ♓, & latitudo gr. 29 24 53″. borea.

Problema 7.

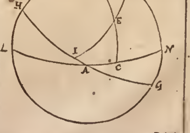
Modus ſecundus.

Dato Azimutho atque Altitudine Novi Sideris, cum articulo temporis & inſuper loco Solis atq; latitudine loci, Declinationem ejus & Aſcenſionem Rectam, & ideo quoque Longitudinem & Latitudinem invenire.

Obſervat. T. B. ſub finem an. 1577.

IN hujus rei inquiſitionem accipiemus Obſervationem *Tychonicam Lib.* 2. *Progymnaſm. Pag.* 23. ſub finem anni 1577. factam, ubi deprehenditur altitudo Stellæ in dextro genu *Pegaſi* grad. 28 24′. & Azimuthum ab Occaſu verſus Septentrionem gr. 8 53′. idq; ſub altitudine Poli gr. 55 54′.

In adjuncto Diagrammate ſit Meridianus B L N P, Horizon L A N, Æquator H K G, cujus Polus ſit P, Polus autem Horizontis B, locus novi Sideris in E, altitudo ejus ſupra Horizontem C E per Quadrantem obſervata, Azimuthus verò ipſius ab Occaſu verſus plagam ſeptentrionalem A C, Declinatio Stellæ E I, & deniq; angulus H P I differentia Aſcenſionis Rectæ Novi Sideris, & Medii Cœli, quæ hoc pacto inquiri poteſt.



In Triangulo B E P dantur duo latera, B P, Complementum latitudinis loci gr. 34 7′. B E Complementum altitudinis obſervatæ gr. 61 36′, cum angulo ab iiſdem comprehenſo P B E, quem metitur complementum Azimuthi in Horizonte C N gr. 81 7′. Innoteſcit ergò *per Lib.* 2. *Cap.* 6. *Prop.* 6. *Trigonom.* tertium Latus P E quod eſt Complementum Declinationis Stellæ in dextro genu Pegaſi gr. 61 58′ 7″. ideoq; Declinatio gr. 28. 1′ 53″. borea.

Deinde

Deindè in eodem Triangulo B E P jam nota ſunt omnia latera unde dabitur angulus B P E gr 79 55′ 52″. qui æqualis eſt arcui Æquatoris H I, præciſè menſurans differentiam Aſcenſionis Rectæ Medii Cœli in H, & rectæ Aſcenſionis Stellæ I. Sublato autem hoc arcu ab Aſcenſione Rectâ Medii Cœli gr. 55 45′. (addito primùm Circulo, gr. 360. quia aliter ſubductio commodè fieri non poteſt) relinquitur Aſcenſio Recta Stellæ in dextro genu *Pegaſi* gr. 335 49′ 8″. & Declinatio borea gr. 28 1′ 53″. Tandem ex Declinatione & Aſcenſione Rectâ, datur quoque longitudo hujus Stellæ (per *Probl.* 2. hujus) ad finem anni 1577. in gr. 19 51′ 44″ ♓ & Latitudo gr. 35 6′ 53″. borea, qui locus ab ultimâ reſtitutione *Tychonicâ* inſenſibiliter diſcrepat.

Si Lector plura exempla ad calculum velit revocare, conſulat *Lib. 2. Tychonis Brahei de recentibus mundi ætherei phænomenis, & Lib. 2. Sphæric. Longomontani* Cap. IX, vel *Uranodromum Crugeri* de Cometâ anni 1618. & alios autores.

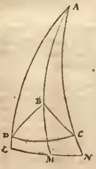
Problema 8.

Datâ Diſtantiâ ignotæ alicujus Stellæ, vel Planetæ, à duabus Stellis fixis quarum Longitudines & Latitudines notæ fuerint, ignotæ quoq; Stellæ ab Æquinoctio Verno, longitudinem & latitudinem perquirere.

DE hoc Problemate egerunt *Regiomontanus lib.* 4. de Triangulis Sphæricis, Prop. 28. & ult. & Lib. 7. Prop. 9. & 10. Epitomes ad Almageſtum *Ptolemai, & Longomont. Lib.* 2 Sphæric, quem ſequutus eſt *Eichſtadius in Padiâ Aſtron. contin. Probl.* 11 *pag.* 107. Sed Nobilis ille *Danus, Tycho Brahæus*, Aſtronomorum facilè princeps, id egregiè illuſtravit & in uſum Aſtrophilorum aptè accommodavit. Ut autem hic modus indagandi longitudinem & Latitudinem Stellæ fiat lectoribus jucundior, neceſſe foret, ſi oſtenderimus quomodo ex ratiociniâ Triangulorum hoc Problema efficiendum & ſolvendum ſit. Modus tertius.

Anno 1595. die 26 *Novembris* hor. 5. ante meridiem, *Caſſellis, Saturnus* obſervatus à *Corde Leonis* gr. 13 46′. à *Dorſo Leonis* gr. 12 50′ 15″. tunc fuit locus Cordis ♌ in gr. 24. 12′ 24″. ♌, latitudo gr. 0 26′ 30″. borea, locus autem Dorſi Leonis in gr. 5. 56′ 24″. ♍, latitudo gr. 14 20′. ſimiliter borea, ex quibus quomodo *Saturni* longitudo inquiri poteſt, docebimus. Obſervatio ♄ Caſſellis facta An. 1595.

In hoc Schemate ſit D locus Cordis Leonis, B locus Dorſi ♌, C *Saturnus*; C D diſtantia *Saturni* à Corde ♌ gr. 13 46′, C B diſtantia *Saturni* à Dorſo Leonis gr. 12 50′ 15″, & L M N portio Eclipticæ. Quinetiam repræſentet A Polum Zodiaci boreum, à quo tres Quadrantes deſcendant in Eclipticam per hæc tria loca ante memorata, connectanturq; per arcus circulorum Sphæræ maximorum, ut D B, B C, C D, ex quibus manifeſtatur locus longitudinis *Saturni* eſſe in N, & D C eſſe differentiam longitudinis *Saturni* à Corde Leonis; & tandem C N erit arcus latitudinis, ſeu diſtantia *Saturni* ab Eclipticâ. Hiſce ita præſuppoſitis, proximè ad inveſtigationem tùm longitudinis, tùm latitudinis *Saturni* progrediemur.



Ratio calculi longitudinis & latitudinis Planetæ obſervati.

I. In Triangulo Sphærico D A B, quia habentur
D A gr. 89 33′ 30″. *Complementum latitudinis Cordis* ♌.
B A gr. 75 40 0. *Complementum latitudinis Dorſi Leonis.*
D A B gr. 11 24 0. *Differentia Longitudinum.*
Ergò datur B D gr. 17 53′ 25″. diſtantia earundem Stellarum per Cap 6. Probl. 6. *Trigonometriæ noſtræ.*

II. In Trigono D A B dantur omnia tria latera.
D A gr. 89 30′ 33″.
B D gr. 17 53 25.
B A gr. 75 40 0.
Ergò dabitur Angulus A D B gr. 38 33′ 8″.

III. In Triangulo B C D habentur omnia latera.
D B gr. 17 53′ 25″, diſtantia duarum fixarum.
D C gr. 13 46 0. diſtantia Saturni à Corde leonis.
C B gr. 12 50 15. diſtantia Saturni à Dorſo Leonis.
Ergò datur B D C gr. 46 5′ 36″, qui addito angulo A D B gr. 38 33′ 8″. emergit totus Angulus A D C gr. 84 38′ 44″.

IV. In Triangulo A C D, quoniam dantur
A D gr. 89 33′ 30″.
D C gr. 13 46 0.
A D C gr. 84 38 44.
Ergò *per Cap. 6. Probl. 6. Trigonometriæ*, dabitur A C gr. 88 17′ 54″, cujus Complementum N C gr. 1 42′ 6″. eſt ipſa latitudo *Saturni* quæſita.

V. In eodem Triangulo omnia tria latera ſunt cognita.
D A gr. 89 33′ 30″. *Complementum latitudinis Cordis* ♌.
C A gr. 88 17 54. *Complementum latitudinis Saturni.*
D C gr. 13 46 0. *Diſtantia Saturni à Corde Leonis.*
Ergò innoteſcit Angulus C A D gr. 13 42′ 42″, cui æqualis eſt arcus L N, qui eſt differentia longitudinis Saturni à Corde ♌, ſecundum Signorum ſucceſſionem.

	gr. ′ ″.
Longitudo Cordis Leonis	24 12 24. ♌.
Differentia longitudinis L N Add.	13 42 42.
Longitudo Saturni quæſita	7 55 6. ♍.

Si plura Exempla deſiderat Aſtrophilus, ea inveniat ſub finem Cap. 2. Lib. 1. *Progymnaſm. Tychonis Brahæi*, ubi per ſimilia ratiocinia Trigonometrica, Stellæ Caſſiopeæ per Obſervationes rectificatæ ſunt.

Problema 9.

Ignoti Sideris locum, per lineas à quatuor aliis Stellis, quorum loca ſunt cognita, in tranſverſum ductas, Regulâ, aut filari modò extenſione, ſecundum Longitudinem & Latitudinem inquirere.

Modus quartus.

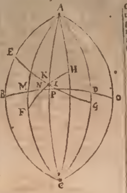
INter varias rationes perquirendi loca ignoti Sideris, quas hactenus excogitarûnt Aſtronomi, non parvi momenti eſt illa, quam *Longomontanus* adducit, & in praxin revocavit; nam accidit interdum ut Planeta, vel nova aliqua Stella à quatuor fixis in lineis rectis intercipiatur, quod adminiculo Regulæ, vel fili extenſione (nudo oculo) explorari poteſt.

Ad illuſtrandum hoc Problema accipiemus duo exempla. Primum eſt id quod habet *Longomontanus Aſtron. Danic.* Lib. 2. Sphæric. Cap. 9. Probl. 5. cujus Demonſtratio ita ſeſe offert.

Anno

Anno Chriſti 1610. die 6 *Decembris* circa horam 9. Veſpertinam, videbatur Stella *Martis* in rectâ lineâ, quamproximè primùm cum lucidâ Arietis, ac poſteriore in dorſo Cete. Deinde in aliâ rectâ lineâ cum extremâ alâ Pegaſi, & eâ quæ in cuſpide narium Cete, prima numero. Obſervatio Longomontani anno 1610. facta.

Sint in hoc Schemate, A & C poli Eclipticæ, B D O Zodiaci medio interlabens, K Stella Martis,; Fixæ autem cum ſuis locis ita ſignantur.



	Longitudo.	Latitudo.
E *Extrem. alæ Pegaſi*	gr. 3 46'. ♈	gr. 12 35'. B.
D *Dorſi Cete*	gr. 6 20. ♈	gr. 16 55. A.
H *Lucidæ Arietis*	gr. 2 14. ♉	gr. 9 57. B.
G *Roſtri Cete*	gr. 9 39. ♉	gr. 7 50. A.

Praxis Calculi Trigonometrici.

I. In Triangulo E A G, pro E G διδόμενα

Sunt { E A Complementum latitudinis alæ Pegaſi gr. 77 25'.
G A Exceſſus latitudinis Roſtri Cete gr. 97 50.
E A G Differentia Longitudinis gr. 35 53.

Ergò datur G E. gr. 41 5.

II. In eodem Triangulo pro E G A, datis omnibus lateribus, datur Angulus A G E gr. 60. 30.

III. In Orthogonio G D L pro D L G & D L διδόμενα ſunt.

D G Latitudo Roſtri Cete gr. 7 50'.
L G D, id eſt A G E gr. 60 30' modò inventus.
D Angulus Rectus gr. 90.

Ergò datur { D L G gr. 30 26'. Per Probl. 11. / D L gr. 13 33. Per Probl. 4. } Triang. Sphæric. Rectang.

IV. Similitèr in Triangulo F C H pro F H & H F C, vel ipſius Compl. ad Semicirculum H F A.

Διδόμενα { F C Complementum latitudinis Dorſi Cete gr. 73 5'.
C H Exceſſus latitudinis lucidæ ♈ ultra 90. gr. 97 57.
F C H Differentia longitudinis harum Stellarum gr. 25 54.

Ergò datur { F H gr. 37 7'. Per Probl. 6. / H F A gr. 45 29. Per Probl. 5. } Triang. Sphæric. Obliquangulorum.

V. In Orthogonio M F N, pro M N F & M N.

Διδόμενα { F M Latitudo Dorſi Cete gr. 16 55'.
M F N Idem cum invento H F A gr. 45 29.
M Angulus Rectus gr. 90.

Ergò datur { M N F gr. 46 59'. Per Probl. 11. / N M gr. 16 29. Per Probl. 4. } Triang. Sphæric. Rectang.

Porrò addantur latera D L & M N, Summaq; ſubtrahatur à M D, & relinquitur latus N L gr. 3 17'.

VI. In Trigono N K L, pro N K.

διδόμενα anguli ad latus { N gr. 46 59'.
L. gr. 30 26.
N L gr. 3 17.

Ergò datur N K gr. 1 38[illegible] Per Probl. 9. Triang. Sphæric. Obliq.

 VII.

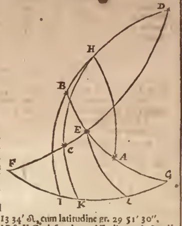
VII. & ultimò, in Orthogonio N K P, pro K P & N P.

Διδόμενα ſunt { K N P gr. 46 59′. K N gr. 1 38. K P N Rectus.

Ergò datur { K P gr. 1 12′. ipſa latitudo *Martis* borea. N P gr. 1 10. cui addito M N gr. 16 29′ efficitur arcus M P gr. 17 39′, qui ſi addatur longitudini Stellæ in F, quæ eſt penes M gr. 6 20′ ♈, emergit ſimul quoque longitudo *Martis* gr. 23 59′ ♈.

Stella Nova anni 1572.

Alterum Exemplum aſſumamus à Doctiſſimo *Eichſtadio* Ped. Aſtro. Pag. 113. (idem quod *Tycho* habet Progym. pag. 550.) ubi ex demonſtratione *Michaelis Mæſtlini*, ille in locum verum novæ Stellæ ad annum 1572. fulgentis invenire provenit. Quare conſidera ſubjectum Schema à M. *Mæſtlino* aptè delineatum, in quo ſit H Polus Eclipticæ boreus, F K L G portio Zodiaci noſtro propoſito ſatisfaciens, in cujus medio interlabatur E Nova Stella, cum & ex Polo H demittantur Circuli ad quatuor fixas, quarum loca ſecundum Tychonicam reſtaurationem ad an. 1572. ſic ſe habent.



A *Quinta Stella Caſſiopeæ*, quæ genu dicitur in gr. 11 57′ ♉, cum latitudine gr. 46 22′. boreâ.

B *Octava Cephei*, quæ alias eſt Siniſtrum Brachium ejus, obtinet. gr. 27 35′ 30″ ♈, cum latitudine gr. 62 35′ 30″.

C *Duodecima Caſſiopeæ*, ſeu lucida Cathedræ gr. 29 11′ 30″ ♈ cum latitudine boreâ gr. 51 14′ 30″.

D *Vigeſima Urſæ majoris*, vel in lucido pede Urſæ erat in gr. 13 34′ ♌, cum latitudine gr. 29 51′ 30″.

Porrò duæ circumferentiæ H B & H C deſcendant ad Zodiacum in I & K, continuetur etiam D C & B A in punctis F & G. Tandem ex E ducatur E L ad rectos ipſi F G.

Praxis Calculi.

Synopſis Calculi ex ratiocinio Triangulorum.

I. In Triangulo B H A pro B A.

Διδόμενα ſunt { B H *Complementum latit. ſiniſtri brachii Cephei gr.* 27 24′ 30″. H A *Compl. latitudinis genu Caſſiopea gr.* 43 38′. B H A *Differentia longitudinis utriuſq; gr.* 14 26′ 30″.

Ergò dabitur B A gr. 18 30′ 34″. per Probl. 6. Triang. Sphæric. Obliq.

II. In Triangulo eodem, datis omnibus lateribus, datur quoq; per Cap. 6. Probl. 11. Trigonometriæ noſtræ, Angulus H B A gr. 146 27′ 20″. quo à duobus rectis ſublato, relinquitur Angulus I B G gr. 33 32′ 40″.

III. In Orthogonio B I G pro B G I & G I.

Διδόμενα ſunt { B I *Latitudo ſiniſtri brachii Cephei gr.* 62 35′ 30″. I B G *Angulus modò inventus gr.* 33 32′ 40″. B I G *Angulus Rectus.*

Ergò datur { Angulus B G I gr. 75 15′ 50″. } Per Probl. 11. } Triang. Sphæ- ; Latus G I gr. 30 28 47. } Per Probl. 4. } ric Obliq.

Cum autem addatur arcus G I Longitudini Stellæ Cephei in I, emergit Longitudo puncti G gr. 27 59′ 17″ ♉.

IV.

IV. In Triangulo C H D *δεδόμενα* ſunt pro D C & H C D.
H C Complementum latitudinis lucidæ Cathedræ gr. 38 45′ 30″.
H D Compl. latitudinis ſiniſtri pedis Urſi majoris gr. 60 8 30.
C H D Differentia longitudinum harum fixarum gr. 164 22 30.

Ergò elicitur { D C gr. 75 19′ 10″. per Probl. 6. / H C D gr. 60 16 52. per Probl. 5. } Triang. Sphær. Obliq.

V. In Orthogonio C F K pro angulo ad F & latere F K inventa ſunt.
K C Latitudo lucidæ Cathedræ gr. 51 14 30″.
F C K Angulus æqualis ſuo verticali H C D, prius invento, gr. 60 16′ 52″.
K Rectus gr. 90.

Ergò invenitur { C F K gr. 57 3′ 53″. Per Probl. 11. / F K gr. 53 47 44. Per Probl. 4. } Triang. Sphæric. Rectang.

Subducto autem hoc arcu gr. 53 47′ 44″. à longitudine loci K reſpondente loco Stellæ in *Cathedra Caſſiopeæ* gr. 29 11′ 30″ ♈, relinquitur longitudo puncti F a principio Æquinoctii verni numerati in gr. 5 23′ 46″ ♓.

Deinde ſi hic locus à prius invento loco in G gr. 27 59′ 17″ ♉ ſubducatur, reliquus erit arcus F G gr. 82 35′ 31″.

VI. In Trigono F E G, pro E F.

δεδόμενα ſunt { *E G F idem cum angulo B G I gr.* 75 15′ 50″. / *E F G idem cum C F K gr.* 57 3′ 53″. / *F G gr.* 82 35′ 31″. }

Hinc dabitur E F gr. 73 29′ 14″. *Per Probl. 9. Triang. Sphæric. Obliq.*

VII. Tandem in triangulo rectangulo F E L pro L E & F L.

Data ſunt { E F *L gr.* 57 3′ 53″. / E F *gr.* 73 39 14. / *F L E Rectus.* }

Itaq; dabitur { L E gr. 53 38′ 42″. Latitudo novæ Stellæ *Per Probl. 2. Triang. Sphæric. Rectang.* / F L gr. 61 39 16 Differentia longit. novæ Stellæ à puncto F. }
quâ additâ Longitudini Puncti F anteà inventæ gr. 5 23′ 46″ ♓, oſtendit Longitudinem novæ Stellæ quæſitam in gr. 7 3′ 2″ ♉, cum latitudine boreâ gr. 53 38′ 42″.

Problema 10.

Datis duabus Stellis in rectâ lineâ cum ignoto Sidere, & ſimul diſtantiâ unius notæ Stellæ ab eodem ignoto ſidere, Longitudinem & Latitudinem novi Sideris explorare.

Cum volueris hoc Problema aggredi, tunc habeas Planetam, aut Sidus ignotum in rectâ lineâ cum duabus ſaltem fixis, & ſimilitèr diſtantiam ejus ab una earundem, quibus prælibatis, jam ad demonſtrationem perveniemus, & ad Diagramma penultimum recurremus, ubi in Triangulo A G E pro Angulo A E G Modus quintus.

Dantur { *A E gr.* 77 25′. *Complementum latitudinis alæ Pegaſi.* / *A G gr.* 97 50. *Exceſſus latitudinis roſtri Cete ultra gr.* 90. / E *A G gr.* 35 53. *Differentia Longitudinum.* }

Ergò datur Angulus A E G gr. 117 57′. *Per Probl. 5. Triang. Sphæric. Obliquang.*

II. In Trigono A E K *δεδόμενα* ſunt.
A E gr. 77 25′. *Compl. latitudinis alæ Pegaſi.*
E *K gr.* 23 2. *Diſtantia Martis ab alâ Pegaſi.*
A E K gr. 117 57. *Angulus nuper inventus.*

Ergò

Ergò datur { A K gr. 88 48′. ferè Compl. latitudinis Stellæ *Martis.*
E A K gr. 20 13. qui ſi addatur loco Stellæ in ♄ gr. 3 46′ ♈.
Locum Martis verum in gr. 23 59′. ♈. Hactenùs de hoc Problemate.

Problema II.

De Ortu & Occaſu Signorum.

rtûs & ccaſûs gnorum finirio.

SIgnorum Ortus & Occaſus duobus modis accipiatur, ſcilicet quantum ad Poëtas & quantum ad Aſtronomos. *Aſtronomicus Ortus* & *Occaſus* eſt Signorum Zodiaci Aſcenſus vel Deſcenſus cum Æquatore collatus, unde Aſcenſio & Deſcenſio dicitur. Sed de hoc Ortu, & Occaſu Aſtronomico anteà amplè diſſeruimus, nunc remanet ut aliquid diceremus de Ortu & Occaſu Poëtico.

Atqui priuſquàm ad hujus Problematis explicationem deveniatur, operæpretium eſſe videtur, ut omnes varietates & differentias Ortuum & Occaſuum Signorum, quas Poëtæ & recentiores Aſtronomi in medium contulerunt circa hoc Problema, conſideremus.

tus & xcaſus lerum plex. tus ſmicus id.

Sunt autem hi triplices; *Coſmici, Acronychi, & Heliaci.* Coſmicus, Mundanus, ſeu verus Ortus matutinus eſt (Græcè ἡ ἀνατολὴ ἀληθινή) quando aliquod Signum vel Stella ſupra Horizontem cum Sole & iiſdem Zodiaci gradibus, in quibus Sol eſt, emergit. Ut in menſe *Aprilis*, in quo manè unà cum *Sole Taurus* ſupra Horizontem aſcendit cum eo tempore *Sol* exiſtat in *Tauro.* De hoc ortu Coſmico canit *Virgilius Lib.* 1. *Georgic.* carmine illo,

Candidus auratis aperit cùm cornibus annum
Taurus, &c.

Polybius Lib. 5. in initio alt *Achaeos* auſpicari annum à vere circa ortum Pleiadum juxta traditionem *Arati Sicyonii*, ejus ſcilicet cujus in officiis mentio fit apud *Ciceronem*, hiſce verbis,

Τὸ μὲν ἔτος, κατὰ τὴν Ἀράτου τοῦ νεωτέρου, ἔτος ἐτύγχανε διηνυκὸς περὶ τὴν τῆς Πλειάδος ἐπιτολὴν· αὐτῆς γὰρ ἦγε τοὺς χρόνους τὸ τῶν Ἀχαιῶν ἔθνος.

caſus ſmicus id.

Occaſus verò Coſmicus ſeu matutinus eſt, quando tempore matutino, Sole oriente, Stella per diametrum oppoſitam infra Horizontem occiduum deprimitur. De hoc coſmico Occaſu loquitur *Virgilius* Lib. 1. *Georg.* In his carminibus,

Ante tibi Eoæ Atlantides abſcondantur,
Debita quam ſulcis committas ſemina, quamque
Invitæ properes anni ſpem credere terræ.

Heſiodus Libro Secundo.

—αὐτὰρ ἐπὴν δὴ
Πληϊάδες θ' ὑάδες τε, τό, τε, σθένος ὠρίωνος
Δύνωσιν τότ' ἔπειτ' ἀρότου μεμνημένος εἶναι.

Tempore enim Autumni occidunt *Pleiades & Hyades* in ♉, quod fit Sole in Signo ♏ oppoſito, exiſtente. Porrò hujus occaſus Pleiadum Coſmici multa exempla extant apud Poetas & Hiſtoricos, ut apud *Polybium* de tranſitu *Annibalis* in *Italiam*. lib. 5.

Τῆς δὲ χιόνος ἤδη περὶ τὰς ἄκρας ἀθροιζομένης διὰ τὸ συνάπτειν τὴν τῆς Πλειάδος δύσιν.

Cui

Cui loco alludit *Livius* libro primo decadis tertiæ, his verbis. *Feſſis tædio tot malorum, nivis & jam caſus occidente jam vergiliarum ſidere ingentem terrorem injecit.* Citantur ab *Athenæo* verſus ex *Aſtrologiâ Heſiodi* de eodem.

> Χειμέριαι δύνουσι πλειάδες
> Αἵ τε δύσιος καὶ χείματος ἀγγελιώτιν.

Ortus acronychus, ſerotinus & *veſpertinus* dicitur, quando veſperi, Sole infra Horizontem deſcendente, Stella ex parte Orientis ſupra Horizontem emergit. De ortu acronycho ſcribit *Ovidius Lib.* 1. *de Ponto Elegia* 9. ubi exilii ſui moram deſcribit, a veſpertino ortu Pleiadum autumnali.

Ortus Acronychus quid.

> *Ut careo vobis Scythicas detruſus in oras,*
> *Quatuor Autumnos Pleias orta facit.*

Occaſus acronychus, qui alias dicitur Occaſus veſpertinus, verus eſt, quando veſperi, Stella aliqua unà cum Sole ſub Horizontem deſcendit. De hoc occaſu Acronycho locutus eſt *Lucanus Lib.* 4.

Occaſus Acronychus quid.

> —— *Nam Sol Ledæa tenebat*
> *Sidera, vicino, cùm Lux altiſſima Cancro eſt;*
> *Nox tum Theſſalicas urgebat parva ſagittas.*

Notandum eſt quod omnia Sidera quæ cum Sole vel paulo poſt dilabuntur, occidunt ἀχρονυχῶς; Stellæ autem quæ aſcendunt ſupra finitorem orientalem cum Signo Soli oppoſito, eodem tempore, emergunt acronychè; ita Stellæ coſmicè orientes acronychè occidunt, & orientes acronychè deſcendunt coſmicè, dummodo non habeant magnam latitudinem ab ecliptica, juxta verſus.

> *Chronicè deſcendit ſydus quod Coſmicè ſurgit;*
> *Coſmicè deſcendit ſydus quod Chronicè ſurgit.*

Ortus Heliacus eſt cum Stella aliqua radiis Solaribus ad aliquod tempus, tecta, rurſus ſe profert in conſpectum. De hoc ortu canit *Ovidius lib.* 2. *de Faſtis.*

Ortus Heliacus quid.

> *Jam levis obliqua ſubſedit Aquarius urna:*
> *Proximus æthereos excipe Piſcis equos.*

Circa finem *Januarii* cum Sol exiſtat in Aquario, illum ingenti ſplendore obſcurabat, ſed circa medium *Februarii*, Sole ſignum ♓ ingrediente, apparebat Aquarius tempore matutino ante Solis exortum, & ſic Heliacè oriri dicitur.

Declaratio.

Virgilius etiam eundem ortum intellexit in *Georg. Lib.* 1.

> *Ante tibi Eoæ Atlantides abſcondantur*
> *Gnoſſiaque ardentis decedat Stella Coronæ,*
> *Debita quam ſulcis committas ſemina, &c.*

Occaſus Heliacus eſt, cum Stella antea conſpicua, ob acceſſum & propinquitatem Solis, cerni ampliùs non poſſit; & de hoc occaſu, *Virgilius* ſic inquit in ultimo horum 2. carminum.

Occaſus Heliacus quid.

> *Candidus auratis aperit cum cornibus annum*
> *Taurus, & adverſo cedens Canis occidit aſtro.*

Cum enim ſeculis ſuperioribus *Canis major* exiſteret in Geminis, occidebat ille heliacè, quando Sol erat in Tauro, non procul à Pleiadibus.

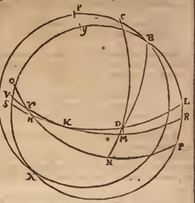
Probl.

Problema 12.

Datâ latitudine & declinatione Stellæ alicujus orientis, vel occidentis, unà cum latitudine loci, punctum Eclipticæ cum quo Stella eadem oritur & occidit, ſcrutari.

CÆterùm ut res illuſtrior fiat, non inconveniens erit, eam appoſito Schemate explanare, in quo ſit B O X P Meridianus, B O X Z Colurus Solſtitiorum, S K L Horizon, O H N P Æquator, U K R Ecliptica, B Polus Mundi boreus, C Polus Eclipticæ, y Polus Horizontis, D locus lucidæ Pleiadum, ♈ M Longitudo lucidæ Pleiadum à verno Æquinoctio gr. 25 24′ ♉, M D ejus latitudo ab eclipticâ gr. 4 0′, N D Declinatio ab Æquatore gr. 23 3′ 30″. ♈ N Aſcenſio Recta gr. 52 0′. id eſt ad annum Chriſti 1671.

Exemplum Lucidæ Pleiadum ad annum 1671.



Quare in Triangulo B D C dantur omnia latera, videlicet B D complementum declinationis lucidæ Pleiadum gr. 66 56′ 30″, D C complementum latitudinis gr. 86 0′, B C diſtantia Poli Eclipticæ à Polo mundi gr. 23 31′ 30″, ergò Innoteſcit angulus B D C gr. 14 15′ 51″. *Per Probl. 11. Triang. Sphæric. Obliq.*

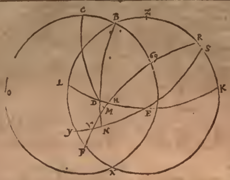
2. In Triangulo Sphærico Rectangulo B L D habetur L B Elevatio Poli *Londinenſis* gr. 51 32′, & B D Complementum Declinationis lucidæ Pleiadum gr. 66 56′ 30″, cum angulo recto B L D gr. 90, itaq; dabitur angulus B D L gr. 58 18′ 57″. Jam ſi huic angulo, angulus præinventus B D C gr. 14 15′ 51″. addatur, conflatur angulus C D L gr. 72 34′ 48″. cui æqualis eſt angulus K D M.

3. In Triangulo Rectangulo K M D habetur M D Latitudo Stellæ gr. 4 0′. Borea, & angulus nuper inventus K D M gr. 72 34′ 48″, ergò datur K M gr. 12 32′ 3″. Porrò cum auferatur hic arcus à longitudine lucidæ Pleiadum gr. 25 24′ ♉, relinquit punctum Eclipticæ, cum quo aſcendit lucida Pleiadum gr. 12 51′ 57″ ♉. quando igitùr *Sol* ad idem punctum pervenit, quod circa diem 23 *Aprilis* noſtro ſeculo contingit, tunc cognoſcitur Ortus verus, Mundanus, ſeu matutinus lucidæ Pleiadum cum Sole. Sive veſpertinus, Sole in puncto oppoſito occidente, quod evenit circa diem 26 *Octobris*, juxta ea quæ ſupra tradidimus.

Exemplum ejuſdem Stellæ.

Porrò ut punctum Eclipticæ, cum quo Stella occidit, inveſtigemus, eandem lucidam Pleiadum in Exemplo ſubjiciemus, ubi ferè ſuperioris Diagraphæ inverſio è Sphærâ in hunc modum repræſentatur.

Eſto



Eſto in Schemate (ut priùs) B F X K R Meridianus B O X ♋, Colurus Solſtitiorum, L H K Horizon, Y E S Æquator, F H ♋ R Ecliptica, B Polus Mundi Boreus, C Polus Eclipticæ, D locus Stellæ, ♈ M Longitudo Stellæ ab Æquinoctio verno ad annum 1671. gr. 25 24'. ♉, M D Latitudo gr. 4 0'. Borea, N D Declinatio gr. 23 3'. ½.

Quoniam autem in hoc & ſuperiori Diagrammate, angulus B D C inventus eſt gr. 14 15' 51''. & angulus B D L gr. 58 18' 57'', itaq; Si auferatur (contrario modo priori) ille ab hoc, relinquitur angulus C D L gr. 44 3' 6'', cui æqualis eſt angulus H D M.

Itaq; in Triangulo Rectangulo D M H quoniam datur latus D M, Latitudo Stellæ gr. 4 0', cum angulo nuper invento H D M gr. 44 3' 6'', ergò habetur latus M H gr. 3 51' 38''. Hic arcus ſi fuerit adjectus Longitudini Stellæ ♈ M gr. 55 24', conſtituit locum in Eclipticà, cum quò deſcendit lucida Pleiadum in gr. 29 15' 38'' ♉.

At quoniam Tabulæ Primi mobilis *Regiomontani* tantùmmodò Aſcenſiones obliquas Signorum continent, abſque deſcenſionibus illorum obliquis; ideo ut eædem Tabulæ huic noſtro propoſito inſerviant, addendus eſt Semicirculus gr. 180. loco oppoſito, ſi locus cujus quæritur deſcenſio fuerit in ſecundo Semicirculo. Si vero fuerit Locus in primo Semicirculo, ſubtrahendus eſt Semicirculus è loco oppoſito, & quod conflabit, erit obliqua deſcenſio. Quomodo Deſcenſiones obliquæ per Tabulas Primi mobilis inveniantur.

Exempli gratiâ, Si quæratur Deſcenſio obliqua gr. 10. ♒, ſub Altitudine *Poli Londinenſis* gr. 51 32', ſumenda eſt Aſcenſio obliqua loci oppoſiti, ſcilicet gr. 10. ♌, quæ eſt gr. 108. 37' 16''. cui ſi addatur gr. 180. proveniet Deſcenſio obliqua gr. 288. 37' 16''. Duo Exempla.

Sub eâdem Poli Elevatione quæratur Deſcenſio obliqua gr. 10 ♌, accipienda eſt igitùr Aſcenſio obliqua gr. 10. ♒, quæ eſt gr. 336. 18' 20''. à quibus ſi auferatur gr. 180. remanet Deſcenſio obliqua gr. 156 18' 20''.

Aliud Exemplum ad inveniendum verum ortum & occaſum Sirii, ſeu Canis majoris.

Aſſumamus hic Schema ex *C. S. Longomontani Libro* 2. *Sphæric. Cap.* 4. *Probl.* 1. depictum, in quo Longitudo *Sirii* in M ad annum 1671. conſtituitur in gr. 9. 35 ½ ♋, Latitudo D M gr. 39 30'. Auſtrina, Declinatio D N gr. 16 14. ½. etiam Auſtrina, Aſcenſio Recta gr. 97. 42'. Exemplum pro indagatione veri Ortûs Sirii, ſeu Canis majoris ad Annum 1671.

Ergò Δεδόμενα ſunt in Triangulo obliquangulo B D C pro angulo ad D.

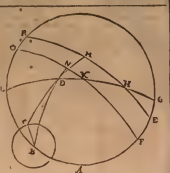
1. D C gr. 50 30′. Complementum latitudinis Stellæ.

2. B D gr. 73 45′ 30″. Complementum Declinationis.

3. B C gr. 23 31′ 30″. Diſtantia Poli Eclipticæ à Polo Mundi.

Ergò datur B D C gr. 4. 2′ 53″.

Secundò, in Triangulo Rectangulo B L D, pro Angulo L D B.



Δεδόμενα ſunt { L B gr. 51 32′ ″. Depreſs. Poli antarctici.
D B gr. 73 45 30. Complementum declinationis.
L gr. 90. Angulus Rectus. }

Hinc invenitur Angulus L D B gr. 54 38′ 18″, à quo ſublato B D C, relinquitur Angulus M D H gr. 50 35′ 25″.

Tertiò, in Orthogonio M D H pro M H. Δεδόμενα ſunt. M D gr. 39 30′. Latitudo *Sirii*, M D H gr. 50 35′ 25″. Angulus modò inventus, D M H Rectus, ergò datur M H gr. 37 44′ 37″, quo longitudini Stellæ in gr. 9. 35′ 30″ ♋ adjecto, emergit gradus Eclipticæ cum quo oritur Sirius gr. 17 20′ 7″. ♌.

Reperiatur etiam gradus Ecliptica cooriens cum Stella, hoc pacto.

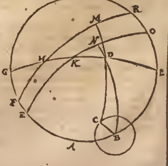
Primùm datur Aſcenſio Recta & Declinatio, tum pro inveniendâ Aſcenſionali differentia, dabuntur in Triangulo Rectangulo D N K Latus D N gr. 16 14′ 30″. Declinatio Stellæ, Angulus N K D gr. 38 28′. Complementum altitudinis *Poli Londinenſis*, Angulus D N K gr. 90. ergò K N erit Differentia Aſcenſionalis gr. 21 30′ 38″. quæ addita Aſcenſioni rectæ datæ gr. 97 42′, aggregatum eſt Aſcenſio Stellæ obliqua gr. 119 12′ 38″, cui reſpondet (in noſtrâ Tabulâ Aſcenſionum Obliquarum ad latitudinem *LONDINI* ſupputatâ.) punctum Eclipticæ gr. 17 25′ ♌, cum quo Sirius attollitur ſupra Horizontem, quando Sol ad hoc punctum pervenit, quod circa 31 diem *Julii* huic ſeculo contingit, quo tempore *medium Canicularium* colligimus.

Progredimur nunc ad inveſtigationem puncti Eclipticæ occidentis cum Syrio, ubi Schematis præcedentis inverſio ita repræſentatur.

In Triangulo Obliquangulo C D B datus eſt angulus C D B gr. 4. 2′ 53″. qui ſi addatur angulo etiam dato L D B gr. 54. 38′ 18″, conflatur angulus MDH gr. 58 41′ 11″.

In hoc itaq; Orthogonio DMH pro M H. quia dantur D M Latitudo Sirii gr. 39 30′, Angulus M D H modo inventus gr. 58. 41′ 11″. Angulus rectus D M H gr. 90. ergò dabitur latus M H gr. 46 16′ 37″.

Hic arcus à longitudine Sirii ablatus, ſcilicet gr. 9. 35½ ♋ relinquit punctum H in Eclipticâ in gr. 23 18′ 53″ ♉.



Quoniam

Quoniam verò punctum *Ortus Sirii cum Sole* in Ecliptica inventum erat gr. 17 20′ 7″ ♌, erit Ortus Veſpertinus ſeu Acronychus quando Sol oppoſitum Eclipticæ punctum tenebit, nempè gr. 17 20′ 7″ ♒, ita quoniam punctum occaſûs hujus Stellæ veſpertini ſeu Acronychi repertum fuit ex noſtro calculo in gr. 23 18′ 53″. ♉, erit occaſus matutinus ſive Coſmicus ejuſdem, cum Sol oppoſitum Eclipticæ locum occupaverit, *viz.* gr. 23 18′ 53″ ♏.

Notandum.

Problema 13.

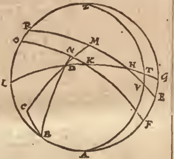
Dato angulo Eclipticæ & Horizontis, & menſurâ depreſſionis Stellæ ſub Horizonte, unà cum puncto ejus ortûs & occaſûs in Eclipticâ, Ortum & Occaſum ejuſdem ſtellæ heliacum perſcrutari.

COgnitio *Heliaci Ortûs* & *Occaſûs* Stellarum, præcipuam utilitatem præbet, unde ſumerentur temporum Anni diſcrimina, quæ declarari multis exemplis apud *Poetas* poſſet, & apud *Aſtrologos* ſuâ in ciendo aere ſignificatione non caret; nam quando Sol Arietem percurrit, ſuâ naturâ, aliquantulum deſiccat Terram, & ſic tempus aptum ſationi facit; ſed ſeminibus paulò poſt opus eſt humore, quare cum ad *Pleiades* & *Hyades* pervenerit, ordo naturæ adfert pluvias; & ut prodeſt hæc de ortu & occaſu Stellarum doctrina ad exercendas Agriculturæ tempeſtates, ita valdè conducit ad explicationem multorum Scriptorum, quorum aliqui ex Poetis eruditè recenſent, idcircò *ἐπίδειξιν* hujus rei in hiſce exemplis oſtenderimus.

De Ortu & occaſu heliaco. Uſus hujus Ortûs & Occaſûs multiplex.

In Schemate appoſito ſint omnia ut prius, & conſideretur Triangulum DMH, in quo ſit Ortus verùs Sirii in D, cui reſpondet punctum Eclipticæ H. Sitq; ZTA circulus altitudinis, TV diſtantia Solis ab Horizonte, & MV diſtantia puncti OrtusHeliacià Longitudine *Sirii* in M.

De inveſtigatione veri Ortûs heliaci alicujus Stellæ.



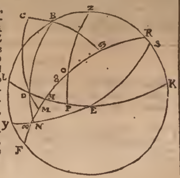
1. In Triangulo igitur Rectangulo DMH datis lateribus DM gr. 39 30′. latitudine *Sirii*, & MH gr. 37 44′ 37″, dabitur angulus MHD gr. 53 24′ 12″, cui æqualis eſt angulus THV.

Exemplum in Sirio.

2. In Triangulo Rectangulo THV, quia dantur TV depreſſio Solis ſub Horizonte gr. 12. THV angulus nuper inventus gr. 53 24′ 12″. HTV angulus rectus, reperitur itaq; latus HV gr. 15 0′ 32″. Hic arcus cum addatur HM arcui gr. 37 44′ 37″. erit totus MV gr. 52 45′ 9″. quo etiam addito longitudini Stellæ in gr. 9 35′ 30″ ♋, oſtenditur punctum V in Eclipticâ gr. 2 20′ 39″. ♍, quod cum *Sol* tenuerit, *Sirius* emergit Ortu heliaco, quod hodie in *Angliâ* circa 11 *Auguſti* factum eſt, & tunc dies Caniculares deſinere dicuntur.

inda- ione i Occa- heli-

Exemplum pro indagando vero heliaco Pleiadum Occaſu.



Eſto Diagramma adjectum, in quo ſit Z L F K Meridianus, L E K Horizon, F O R Ecliptica, Y E S Æquator, Z vertex ſeu Zenith loci, B Polus Mundi, C Polus Eclipticæ, D locus lucidæ Pleiadum, ♈ M ejus longitudo in Eclipticâ ab Æquinoctio verno M D Latitudo ab Eclipticâ, N D Declinatio ejuſdem, & Z O P, pars verticalis circuli.

Cæterùm quoniam ex prioribus datum eſt latus M H gr. 3. 51′ 38″. invenitur Ortus Stellæ verus ad H in gr. 29. 15′ 38″. ♉.

Aliud Exemplum.

em- n pro ſu adum aco.

Jam in Triangulo Rectangulo D M H dantur latera M H gr. 3. 51′ 38″. M D Latitudo Stellæ gr. 4 0′, ergò reperitur Angulus D H M gr. 46 5′ 7″. Huic æqualis eſt angulus O H P.

Dein in Orthogonio O P H datur angulus O H P gr. 46 5′ 7″, cum latere O P gr. 14 0′. (quod æquale eſt depreſſioni Solis ſub Horizontem, quamvis hoc in loco arcum in tantum ſupra Horizontem elevari poſuimus, ut hic punctum Solis oppoſitum acquiramus) ergò innoteſcit H O gr. 19 37′ 23″. cui addito puncto Oriente H gr. 12 51′ 57″. ♉, proveniet punctum in Ecliptica ad O in gr. 2 29′ 20″. ♊, quando igitur Sol in Ortu ad contrarium Eclipticæ punctum pervenit, nempè gr. 2 29′ 20″ ♐, *Atlantides Eoæ* in crepuſculo matutino in occaſu abſconduntur, quod ſecundum noſtrum Calendarium circa 14 *Novembris* factum eſt.

De hoc Occaſu dicitur *Virgilius Lib.* 1. *Georg.* ubi docetur tempus ſerendi triticum in fine *Autumni* ex heliaco occaſu matutino *Pleiadum*, his verſibus.

At ſi triticeam in meſſem, robuſtaq; farra,
Exercebis humum, ſoliſq; inſtabis ariſtis ;
Ante tibi Eoæ Atlantides abſcondantur,
Gnoſſiáque ardentis decedat ſtella Coronæ,
Debita quàm ſulcis committas ſemina, quamq;
Invitæ properes anni ſpem credere terræ.

CAP.

CAP. III.

IN prioribus 2. Capitibus talia inſeruimus Problemata Sphæræ, quæ primò *Solem, Lunam, Planetas, & Stellas fixas* reſpiciunt, quibus nulla tradidi, niſi quæ triti uſûs ſunt praxi Aſtronomiæ, quæ ob eximium, & præſtantiſſimum uſum perquam idonea inſeri judicavi; ut autem miranda prorsùs Doctrina Parallaxeôn noſtrum nè prætèreat ſcrutinium, in hoc Capite (quantum fas eſt) hujus efficiendæ Methodum per Doctrinam Sphæricorum Triangulorum oſtendero.

Problema 1.

Dato Puncto in Ecliptica Cœlum mediante, Altitudinem ejuſdem puncti inveſtigare.

1. PRiuſquàm ſciamus quid Signum & gradus eſt in Medio Cœli, Rectam ejus Aſcenſionem invenire oportet, quod ad agendum, addamus Rectam Solis Aſcenſionem tempori pomeridiano in gradus & minuta æquatoris reductam, & ſumma eſt Recta Aſcenſio Medii Cœli, prout in *Problemate* 13. *Cap. primi* docuimus. De altitudine Medii Cœli.

2. Aſcenſio Recta Meridianæ ſectionis ſic inventa, ciò exhibebit punctum Medii Cœli in Ecliptica, juxta doctrinam in Problemate 5. primi Capitis traditam.

3. Declinatio Medii Cœli quoque inquirenda eſt per Problema primum, quæ addito Altitudini Æquatoris, ſi Sol ſit in ſignis borealibus, & habebis altitudinem Medii Cœli; alioquin ſubtrahe eandem ab altitudine ejuſdem, ſi fuerit Sol in Signis auſtralibus, & invenies altitudinem Medii Cœli quæſitam.

Exemplum. Sit Tempus datum 1665. *Junii* 24 dies, hor. 18. P M, quo tempore verus locus Solis eſt in gr. 13. 26′ 10″. ♋.

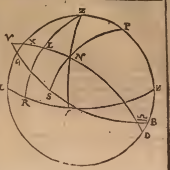
		gr.	′	″.
Tempus Diei hor. 18. in grad. æquatoris converſum facit		270	0.	
Aſcenſio Recta Solis per Probl. 2. Cap. 1.		104	36	14.
	Summa	374	36	14.
Circulus integer	Subtr.	360.		
Relinquitur Aſcenſio Recta Meridianæ ſectionis		14	36	14.
Ergò per Problema 5. datur Medium Cœli in Ecliptica		15	51	49. ♈.
Declinatio hujus puncti borea per Probl. 1.		6	15	50.
Elevatio Æquatoris LONDINI.		38	28.	
Altitudo igitur Medii Cœli erit.		44	43	50.

Modus inveniendi altitudinem medii Cœli.

Problema 2.

Data obliquitate Ecliptica maxima, unà cum Longitudine angulum interſectionis Ecliptica cum Meridiano, ſeu circulo Declinationis depromere.

SIt in Diagrammate appoſito Meridianus Z L D H P, Horizon L V H è Polo Z. Æquator G S B è Polo P, Zodiacus X N D. Sit autem L G elevatio Pro angulo Eclipticæ cum Meridiano.



elevatio æquatoris ab Horizonte, X Punctum Medii Cœli in Ecliptica, G X Declinatio ipſius borea, & L X altitudo Medii Cœli.

In Problemate præcedente Medium Cœli in Eclipticâ ad X invenitur in grad. 15 51′ 49″ ♈. In Triangulo itaque Sphærico ♈ G X dantur.

1. *X♈ G gr.* 23 31′ 30″. *Obliquitas Ecliptica maxima.*

2. ♈ *X gr.* 15 51′ 49″. *Longitudo M.C. in Ecliptica.*

3. ♈ *G X, gr.* 90. *Angulus Rectus. Ergò datur angulus* ♈ *XG gr.* 67 16′ 42″. *quæſitus.*

Operatio.

Per Probl.	Radius gr. 90.		10.
16 Triang.	X ♈ G gr. 23 31′ 30″.	t.	9. 638820.
Sphæric.	♈ X gr. 15 51 49.	cs.	9. 983137.
Rectang.	♈ X G gr. 67 16 42.	ct.	9. 621957.

Problema 3.

Datâ altitudine medii Cœli, unà cum angulo Ecliptica & Meridiani, Nonageſimum gradum Ecliptica, cum ejus altitudine venari.

PRimùm In Triangulo Sphærico Rectangulo Z X L pro inveniendis lateribus X L & Z L, Δεδόμενα ſunt. (1.) Z X L angulus, Eclipticæ & Meridiani, per Problema 2. grad. 67. 16′ 42″. inventus (2.) Z X gr. 45 16′ 10″. Complementum altitudinis Meridianæ Sectionis. (3.) Z L X angulus rectus gr. 90. hinc inveniuntur latera X L & Z L.

1. Pro X L *diſtantiâ Nonageſimi à Meridiano.*

Radius gr. 90.	10.	Med. Cœli ad X gr.	15 51′ 49″ ♈.
Z X gr. 45 16′ 10″. t.	10. 004085.	Arcus L X add.	21 18 4.
Z X L gr. 67 16 42. cs.	9. 586874.	Nonageſ. grad. ad L.	7 9 53. ♉.
X L gr. 21 18 4. t.	9. 590959.		

Hæc diſtantia Nonageſimi à M. C. ſemper eſt addenda Medio Cœli à Capricorno ad Cancrum, & ſubtrahenda à Cancro ad Capricornum, & gradum Nonageſimum producit.

2. Pro L Z. *Complemento altitudinis Nonageſimi gradus.*

Per Probl.	Radius gr. 90.		10.
2. Triang.	Z X L gr. 67 16′ 42″.	s.	9. 964915.
Sphæric.	Z X gr. 45 16 10.	s.	9. 851518.
Rectang.	Z L gr. 40 56 30.	s.	9. 816433.

Ergò datur Z L gr. 40 56′ 30″. cujus Complementum R L gr. 49 3′ 30″. eſt altitudo Nonageſimi quæſita.

Probl.

Problema 4.

Datâ altitudine Nonageſimi gradûs unà cum diſtantiâ Solis ab eodem, Angulum Eclipticæ cum circulo verticali indagare.

De angulo Eclipticæ cum Circulo verticali.

RETento eodem Ultimo Diagrammate, habemus, in Triangulo L Z N (1.) Z L gr. 40 56′ 30″. Complementum altitudinis Nonageſimi gradûs (2.) L N gr. 66 16′ 17″. Diſtantia Solis à gradu Nonageſimo (3) Z L N angulus rectus gr. 90. ex hiſce δεδομένοις inquirendus eſt angulus Z N L hoc pacto.

L N gr. 66 16′ 17″.	*Diſtantia Solis à gradu 90.*	s.	9. 961640.
Z L gr. 40 56 30.	*Compl. altitudinis Nonageſimi*	t.	9. 938270.
Radius 90.			10.
Z N L gr. 43 27 33.	*Angulus Eclipticæ cum Verticali*	t.	9. 976630.

Problema 5.

Datâ eâdem Altitudine Nonageſimi ac Diſtantiâ Solis ab eodem, Altitudinem Solis invenire.

Quomodo vera Solis Altitudo ſupra Horizontem in omni regione, & in quâlibet datâ horâ aliter quàm ſuperius inveniatur.

IN eodem Triangulo Z L N dantur latera Z L gr. 40 56 30. L N gr. 66. 16′ 17″. ergò datur Z N hoc pacto.

Radius gr. 90.			10.
Z L gr. 40 56 30.	*Compl. altitudinis Nonageſ.*	cs.	9. 878164.
L N gr. 66 16 17.	*Diſtantia Solis à gradu 90.*	cs.	9. 604663.
Z N gr. 72 18 14.	*Compl. altitudinis Solis*	cs.	9. 482827.

Ergò datur V N grad. 17 41′ 45″. *Altitudo Solis quæſita.*

Problema 6.

De Parallaxi Solis, Lunæ, aliorumq; Planetarum.

Parallaxis Aſtri quid

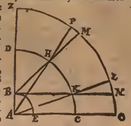
L*Ocus verus Aſtri* eſt punctum Firmamenti per rectam lineam à centro Terræ per centrum aſtri ductam demonſtratum, viſus autem ſeu apparens locus per lineam ab oculo per centrum aſtri ductam determinatur, quapropter Παράλλαξις, (ſeu diverſitas aſpectus) aſtri eſt arcus circuli magni per Zenith & verum locum aſtri tranſeuntis, nempè arcus ejuſdem circuli, inter verum & apparentem interceptus.

Omnes Planetæ Parallaxin pariunt.

Omnes Planetæ parallaxin pariunt, præcipuè ij Terræ propiores. Planetâ autem in Zenith exiſtente, nulla datur parallaxis, ſed viſus & verus locus ſemper coincidunt, & hoc tantùm in Zonâ torridâ contingere poteſt. Si verò fuerit Planeta à Zenith remotus, differunt inter ſe locus verus & apparens.

In

In hâc Figurâ repræſentet A centrum *Terræ*, B locum *Obſervationis* in ſuperficie *Terræ*, Z O Quadrantem Octavæ Sphæræ, quæ propter immenſam diſtantiam Parallaxeωs egens eſt, D H C orbem unius Planetarum, A H P, vel A K L lineam veri loci Planetæ, B H M, & B K N lineas apparentium locorum; hinc obſervatu facile eſt quòd cum Planeta eſt in H, angulus Parallaxeωs adæquat angulum B H A, qui idem eſt cum angulo P H M, ſecundum 15. *primi Libri De Elementis.* Per hanc Demonſtrationem vobis, viſu facillimum eſt quòd cum Planeta eſt in D nulla omninò Parallaxis eſt altitudinis, cùm autem in K maxima eſt, idcircò quantò propior Planeta horizonti, tantò major eſt illius Parallaxis. Indè manifeſtum eſt quòd angulus Parallaxeωs maximus ſit in Horizonte.



Problema 7.

Datâ Diſtantiâ Planetæ à Terrâ unà cum Terræ ſemidiametro, Parallaxin Planetæ in Circulo verticali reperire.

SIt in Schemate præcedente, A B Semidiametrus Terræ, D H diſtantia Planetæ à Zenith, A H diſtantia illius à centro Terræ, & B H A vel P H M Parallaxis planetæ in eodem circulo verticali.

Ad tempus ſupra datum 1665. diem 25 Junii hor. 6 A. M. Altitudo Solis invenitur gr. 17 41′ 46″. & diſtantia ejus à Terrâ 101783. Quocirca in Triangulo A B H dantur A H diſtantia Solis è Terrâ 101783.

A B Semidiameter Terræ 68½.

B A H Diſtantia *Solis à Zenith* gr. 72 18′ 16″.

Ergò per ſolutionem Trianguli, datur Angulus Parallaxeωs A H B hoc pacto.

A H	101783 0.		
A B	68 5.		
Summa	101851 5.	Co. ar.	4. 992033.
Differ.	101714 5.		5. 007382.
Tang.	53 50′ 53″.		10. 136314.
Tang.	53 48 40.		10. 135729.

Ang. BHA - PHM. 2 13. qui eſt Parallaxis Solis in Circulo verticali, tempore dato quæſita.

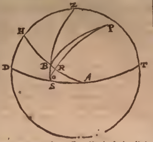
Problema 8.

De Parallaxi Solis, Lunæ, aliorumq; Planetarum ſecundum Longitudinem & Latitudinem.

P*Arallaxis longitudinis* eſt arcus Eclipticæ ſeu circuli paralleli eidem inter duos magnos circulos interceptus, quorum unus à Polo Eclipticæ per verum locum præterit, alter ab eodem Polo per locum apparentem; ita Parallaxis longitudinis differentia tantùm eſt veri & apparentis loci ſecundum longitudinem Eclipticæ.

Parallaxis

Parallaxis verò *latitudinis* eſt arcus circuli magni prætereuntis Polos Zodiaci ad locum aſtri viſum inter duos circulos æquidiſtantes interceptus, quorum unus præterit verum locum aſtri, alter apparentem. Parallaxis latitudinis quid.



In hoc Diagrammate repræſentet B verum locum Planetæ, O apparentem, O B Parallaxin altitudinis, R B Parallaxis Longitudinis, & O R Parallaxin latitudinis. Expoſitio

His ita præmiſſis, ad rem nobis propoſitam feſtinabimus, & curſim breves aliquas directiones, quibus cùm Planeta Parallaxin longitudinis ſolùm, & cùm Parallaxin latitudinis ſolùm, & cùm Parallaxin & longitudinis & latitudinis habet, ſciamus, inſeremus.

1. *Si linea verticalis, ſeu linea à Zenith ad Planetam tranſiens ſit Signifer, nulla datur Parallaxis latitudinis, ſed ſolùm longitudinis.* Regulæ quinq;

2. *Si linea verticalis Planetam tranſeuns in Signiferum directè cadat ad angulos rectos, nulla eſt Parallaxis Longitudinis, ſed ſolùm latitudinis.*

3. *Si linea verticalis Planetam prætereuns, in Signiferum cadat cum obliquis angulis, Planeta Parallaxin & Longitudinis & Latitudinis habet.*

4. *Nobis ultra gradum 30. Poli Elevationis habitantibus, Planeta ſemper apparent Auſtraliores, propterea quòd illorum Parallaxes ſemper in Auſtrum cadunt.*

5. *Ab Ortu uſq; ad gradum Nonageſimum Planetæ apparent Orientaliores, ſed à Nonageſimo gradu ad Occaſum apparent Occidentaliores locis eorum veris; hoc eſt, illic locus, viſus præcedit, hic autem ſequitur verum ſecundum ſeriem Signorum.*

Problema 9.

Datâ Parallaxi Altitudinis, unà cum angulo Eclipticæ cum Circulo verticali, Parallaxin Longitudinis & Latitudinis numerare.

IN Diagrammate præcedente repræſentet O B R Angulum Eclipticæ cum Verticali, O B Parallaxin Altitudinis, B R Parallaxin Longitudinis, & O R Parallaxin Latitudinis. Modus inquirendi Parallax. in Longitudinis & Latitudinis.

Ad tempus ſupra datum 1665. Junii 25 diem, Hor. 6. M. Parallaxis Altitudinis Solis eſt 2′ 13″. & Angulus Eclipticæ cum verticali gr. 43 27′ 33″. ergò dantur latera B R & R O hoc pacto.

1. In Triangulo Rectangulo O R B, pro R B Parallaxi Longitudinis.

Radius gr. 90.			10.
O B Parallaxis Altitudinis Solis	2′ 13″	t.	6. 80918.
O B R Angulus Eclipticæ cum Verticali, gr. 43	27 33.	cs.	9. 86085
B R Parallaxis Longitudinis Solis	1 37	t.	6. 67003.

2. In eodem Triangulo, pro R O Parallaxi Latitudinis.

Radius gr. 90.			10.
O B Parallaxis Altitudinis Solis	2′ 13″.	s.	6. 80918
O B R Angulus Eclipticæ cum Verticali, gr. 43	27 33.	s.	9. 83748.
R O Parallaxis Latitudinis Solis	1 31.	s.	6. 64666.

Eodem modo exerceat ſe Aſtrophilus in inquirendis aliorum Planetarum Parallaxibus, ut infra (Deo favente) demonſtrabimus.

Problema 10.

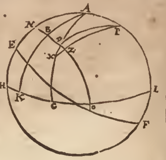
Datâ altitudine Planetæ latitudinem Senſibilem habentis, & ejus Diſtantiâ à 90. gradu, unà cum Altitudine Orbitæ Planetæ in eodem gradu, Parallaxin Longitudinis & Latitudinis inveſtigare.

IN *Lunâ & cæteris Planetis*, qui Latitudinem habent ab Eclipticâ, cùm illa gradum unum, aut duos exceſſerit, præmiſſa Doctrina huic noſtro negotio accuratè non ſubſerviet, quia Angulus Parallacticus Eclipticam ſolùm reſpicit, in Solaribus tamèn Deliquiis doctrina præcedentis Capitis prælatu digniſſima eſt; nihilominùs quomodo hoc efficiatur, cum Luna aut Planeta ſenſibilem habet latitudinem demonſtravero, ad quod faciendum, applicabo exemplum tempori inſignis illius Obſervationis *C. S. Longomontani, Lib. 1. Cap. 6. Theoric.* quâ uſus ſum *Part. 4. Cap. 11.* in rectificatione motûs Lunæ; viam igitur præ ſſe aliis exiſtimo, oſtendam.

…odus in-…niendi …rallax-…Planetæ, …itudi-…a ab E-…pticâ …ſibilem …entis.

Eſto in hâc Figurâ Meridianus integer A H L P, Horizon HCL, Æquator E O F. Sitq; A Zenith, ſeu Vertex *Hafniæ in Dania*, N D O portio Orbis Lunæ, A D C Circulus verticalis, in quo Phænomenon hæreat, A B K Gradus Nonageſimus Eclipticæ, D verus Locus *Lunæ*, X locus apparens, K B Altitudo Orbis Lunæ in Nonageſimo gradu, C D Altitudo Lunæ ſupra Horizontem, D X Parallaxis Altitudinis, D Z Parallaxis Longitudinis, Z X Parallaxis Latitudinis.

…poſitio.



Illuſtratio.

Anno 1608. die 12. *Februarii*, hor. 8. 43′. veſperi, obſervavit *Longomontanus* illuſtrem Conjunctionem ſuperioris cornu *Lunæ* cum *Aldeboran*; quo tempore verus Solis locus (juxta Tabulas noſtras) erat in gr. 3 43′ 30″. ♓. Lunæ in gr. 4 46′ 53″ ♊, Nodus Lunæ boreus, Sig. 4. gr. 23 54′ 9″. Latitudo Lunæ gr. 5 11′ 14″. Auſtrina.

…go-…tanus …oric. …1 Cap. …8.

		gr.	′.	
Datur etiam		gr.	′.	
Aſcenſio Recta Medii Cœli		106	24.	
Medium Cœli in Ecliptica	♋.	15	6.	
Gradus Nonageſimus	♋.	10	55.	
Nodus Lunæ boreus	♌.	23	54.	
Latitudo Orbitæ Lunæ in Nonageſimo Merid.		3	24.	
Angulus Orientis		57	11.	
Ergò habetur Altitudo Nonageſimi in Orbitâ Lunæ		53	47	= K B.
Diſtantia Lunæ à gradu 90.		36	9	= B D.
Altitudo Lunæ ſupra Horizontem		38	50	= C D.

Probl. Triang. …æric. …iquan.

Quoniam jam in Triangulo A B D dantur omnia Latera, A D gr. 51 10′. B D gr. 36 9′, A B gr. 36 13′, ergò dabitur Angulus B D A æqualis angulo X D Z gr. 49 10′.

In

In Triangulo D Z X pro lateribus D Z & Z X inveniendis, data ſunt primò D X Parallaxis Altitudinis Lunæ 46′ 8″, ſecundò Angulus Parallacticus X D Z gr. 49 10′, ergò ſecundum 9. hujus, datur Parallaxis Longitudinis D Z 30′ 10″, & Parallaxis Latitudinis Z X 34′ 54″. Jam ſi auferatur Parallaxis Longitudinis 30′ 10″, ex vero loco Lunæ gr. 4 46′ 53″. ♊, relinquit locum Lunæ viſum gr. 4 16′ 43″ ♊. Additâ verò Parallaxi Latitudinis Lunæ 34′ 54″. ad veram *Lunæ* latitudinem, gr. 5 11′ 14″, conflatur Latitudo *Lunæ* viſa gr. 5 45′ 8″. auſtrina. Fuit autem Aldeboran in gr 4 18′ 12″ ♊, cum Latitudine auſtrali gr. 5 31′. Differentia itaq; Longitudinum Lunæ & Aldeboran erat 1′ 29″, & differentia Latitudinum 15′ 8″, quæ eſt ferè æqualis Lunæ Semidiametro 16′ 9″. Erat ergò viſibilis Conjunctio ſuperioris cornu Lunæ cum *Aldeboran*, omnibus modis ut *C. Longomontanus* obſervavit.

In Parallaxibus aliorum quinq; Planetarum Inveſtigandis, quamvis Orbes illorum ſinguli ad Eclipticam inclinati ſint, veruntamen quia Parallaxis Sideris, præcipuè *Saturni* & *Jovis*, ſemper eſt perexigua, & ſæpe nulla, hic igitur ſit modus inquirendæ Parallaxeos. Modus facilior.

Exemplum. Anno 1644. die *Julii* 28 Ho. 2. manè, cum Stella Martis eſſet in orientali quadrante Cœli, ſub radiis ♃ vibrantibus, inquirenda eſt Parallaxis ♂ in Longitudine & latitudine, & primùm ad hoc tempus datur ex Tabulis.

	gr.	′.
Aſcenſio Recta Medii Cœli	347	20.
Medium Cœli in Ecliptica	16	14. ♓.
Angulus Meridianus	67	4.
Altitudo M. C. Luſſinbamiæ	31	53.

Primùm inquirendus eſt angulus Eclipticæ cum Horizonte, juxta doctrinam in Probl. 3. traditam. Sic in noſtro Exemplo hic angulus invenietur gr 38 33′ 18″.

II. Si conjiciantur in unam ſummam hi duo Logarithmi. 1. Coſinus anguli meridiani. 2. Cotangens Altitudinis Medii Cœli, dabitur Tangens diſtantiæ Gradûs Nonageſimi à Medio Cœli, quæ ſi addatur M. C. à Capricorno ad Cancrum, vel auferatur à Cancro ad Capricornum, proſiliet Gradus Eclipticæ Nonageſimus.

Exemplum.

								gr.	′	″.
Angulus Meridianus	gr. 67	4′	0″.	cs.	9. 590685.	Medium Cœli		16	14	0 ♓.
Altitudo Medii Cœli	gr. 31	53	0.	ct.	10. 206180.		Add.	32	3	50.
Diſtantia 90mi à M.C.	gr. 32	3	50.	t.	9. 796865.	Grad.	90.	18	17	50 ♈.

III. Ex diſtantia ♂ è Terra 125248. datur Horizontalis ♂ Parallaxis scr. 1′ 53″. per doctrinam in *Probl. 7. hujus.*

IV. Quocirca ſi conjiceris in unam ſummam tres numeros Logarithmicos, 1. Logarithmus Logiſticus Parallaxeos ♂ Horizontalis, 2. Sinus Anguli Orientis, ſeu Eclipticæ cum Horizonte, 3. Sinus Elongationis Martis à Nonageſimo, conficies Logarithmum Logiſticum Parallaxeos Longitudinis. Modus inveniendi Parallaxin ♂ (vel alterius Planetæ) in Longitudinem.

Exemplum.

Parallaxis ♂ Horizontalis			1′ 53″.	L. L.	8.	49677.
Angulus Ecliptica cum Horizonte,	38°	33′	18″.	S.	9	79467.
Elongatio ♂ à Nonageſimo gr.	40	0′	24″.	S.	9.	80813.
Parallaxis Longitudinis ♂			0′ 45″.	L. L.	8.	09957.

V. Si addantur Logarithmus Logiſticus Parallaxeos ♂ Horizontalis, & Coſinus anguli Orientis, proveniet Logarithmus Logiſticus Parallaxis latitudinis.

dus in-
rendi
allax-
uinq;
norum
neta-
n inLa-
dinem

Exemplum.

Parallaxis ♂ Horizontalis	1′ 53″.	L L. 8. 49677.
Angulus Orientis, ſeu Eclipt. cum Horiz. gr. 38	33′ 18″.	cs. 8. 89321.
Parallaxis Latitudinis ♂	1′ 29″.	L L. 8. 38998.

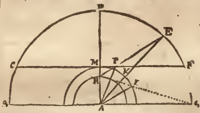
Ad ſupplendum Paginam vacuam, placet hoc *Problema Longomontani*, annectere, in quo redduntur rationes refractionum Siderum.

Problema 11.

De Refractionibus Siderum.

ractio-
n vari-

DOctrina Refractionis Siderum, etſi in opticis *Vitellionis*, & *Albazeni* quodammodo ſit indicata: noſtrâ tamen ætate primùm per *Tychonem Brahe* ab experientiâ cœleſti eſt reperta, & cauſæ ejuſdem luculenter cum *Rothmanno* diſceptatæ. Has poſtea *Johannes Keplerus* numeris demonſtrationi alligatis explicare conatus eſt, ſed non ſatis generali modo, quum in locis maritimis ac Polo Arctoo vicinioribus, pro craſſiore aeris conſtitutione refractiones in immenſum varientur, adeo ut duplo, aut etiam triplo majores ibidem fiant, quam in ulteriore *Germania*, aut cæteroquin in locis aerem per Radios Solis efficaciores depuratum habentibus. Duo itaq; ad varietatem refractionum Siderum indicandum occurrunt, natura *Soli*, & *Solis* radiorum gemina inter feriendum ſuperficiem Terræ obliquatio, una appropinquationis poli reſpectu; altera horizontis in ſingolis locis. Quibus conſideratis, & quod ultra ſemiquadrantem à finitore vix in ullis locis, quibus hactenus in *Norvegia* & alibi degeram, *ſenſibiles Refractiones* deprehendantur, cauſas ejus adjuncto Diagrammate breviter cum Domino *Tychone* exponam. In quo à centro A tres Orbes deſcribuntur; extimus cœleſtis, cui ſidera inhærere intelliguntur B C D, terreſtris globus H N, & Sphæra aerea M K L, circa *Terram* undique fuſa. Sit autem ætherea regio quæ intra hanc ſphæram & extimum orbem continetur, tam ſubtilis materiæ ac eſſentiæ, (ſicut illa à nobis in præcognitis oſtenſa eſt, & amplius



doctrina Parallaxium, ac Refractionum oſtenditur) ut nullam per ſe ſiderum aut Refractionem aut vibrationem cauſetur. Conſtat itaque quod Refractionum cauſa penes ſolam aeream Sphæram ſit conſideranda, modo, quo ſuperius dixi; adeo ut ratione craſſioris diaphani, & obliquioris projectionis radiorum efficacius ſidera refringantur, ſive per viſum noſtrum, ſive per radios ſuos ſeſe nobis inſinuent, unde accidit, quod maximæ Refractioni Stella in maxime declivi ſitu obnoxia ſiat. Veluti in L. Sideris exiſtentis in Horizonte G, ob incidentiam obliquiorem radii in L, & craſſius diaphanum H L, quod in P pene evaneſcit.

CAP.

CAP. IV.

IN hoc Capite oſtendemus quomodo Diſtantia duorum locorum poſitorum ſupra Terram ſolutione Triangulorum Sphæricorum inveniatur, quæ quidem priuſquam aggrediamur, neceſſarium erit, ut definiamus; quid ſi Urbis Longitudo & Latitudo, & quâ viâ Diſtantia unius loci ab altero ad oculum repræſentatur ſecundum Sphæræ projectionem.

Longitudo Urbis quid.

1. *Longitudo loci* eſt ejuſdem diſtantia ab Inſulis Fortunatis ultra Portugalliam, quæ vocantur *PRIMARIUS MERIDIANUS*, undè Longitudo omnium locorum ſupra Terram in Æquinoctio Orientem verſus numeratur.

Latitudo loci quid.

2. *Latitudo Loci* eſt Diſtantia ejuſdem ab Æquinoctiali Circulo, quæ in Meridiano alterum Polorum verſùs numeratur.

Diſtantia locorum in Terrâ quid.

3. Diſtantia duorum locorum eſt arcus magni Circuli Terreſtris per utroſq; locos prædictos tranſiens, & breviſſimum inter eoſdem ſpatium eſt ſupra Terræ ſuperficiem.

Longitudines locorum in Terrâ ex Eclipſibus Lunæ adamuſſim inveniuntur.

Longitudo loci multis etiamſi modis, facillimè tamen Eclipſi Lunari inveſtigetur. Supponendum eſt itaq: Lunaris Eclipſis *LONDINI* initium fore Horâ octavâ, Scrup. 55′. poſt Meridiem, & eâdem nocte *ROMÆ* incipiſſe obſervatur Horâ nonâ, Scrup. 46′, differentia erit Scrup. 51′, ſive gr. 12 45′, quæ addita Longitudini *LONDINI* gr. 24 20′, denotat Longitudinem *ROMÆ* gr. 37 5″.

Inveſtigatio latitudinis loci ex Altitudine Solis meridianâ extra tempus Æquinoctii.

Latitudinem loci quovis die habere liceat altitudine Solis meridianâ, & ejuſdem Declinatione; Si enim Sol habeat Auſtralem Declinationem, addendum eſt Altitudinem Quadrante obſervatam (quam Parallaxi & Refractione corrigere liceat) vel ſi Borealem habeat Declinationem, ſubtrahenda eſt eadem ab Altitudine obſervatâ, & habebis Elevationis Poli Complementum.

Exemplum.

E. G. Die 10 *Aprilis* 1661. Sol Meridianus erat in gr. 0 52′ ♉, Borealem habens Declinationem gr. 11 49′, quo temporis articulo Meridiana ejus Altitudo *Luſſenhemiæ* obſervaretur gr. 49 9′, itaq; ſecundum Regulam, quia Boream habet Declinationem, ex Altitudine Declinatio ſubtrahitur, & manent gr. 37 20′, Poli ſcilicet Elevationis complementum.

Sed quoniam jam extant particulares Catalogi Longitudinis & Latitudinis plurimarum Civitatum, & locorum ſupra Terram, de hâc re non ampliùs diſſerendum eſt, ſed in his quæ ſequuntur Problematis docebimus, quomodo itineraria Diſtantia duorum locorum ſupra Globum Terreſtrem ſit accuratè inveſtiganda.

Problema 1.

Quâ arte diſtantiæ locorum inveniantur.

Quo inveniri poteſt Diſtantia duorum locorum Longitudine ſolâ differentium.

Expoſitio

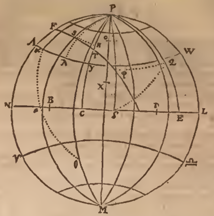
AD explicandum hoc obſervare licet, quod in adjuncto Diagrammate, Circulus extremus literis P C M L inſignitus denotat *Primarium* Terræ *Meridianum*, C B D L Terræ Æquinoctialem, P Boreum ejuſdem Polum, M verò Auſtrinum, &c.

In hoc Problemate duo ſunt Caſus.

Quando Civitates ſub Æquatore ſitæ ſunt.

1. Si uterq; locus ſub Æquinoctiali ſit, tunc differentia Longitudinum eſt

diſtantia



diſtantia quæſita. E. G. Supponas B eſſe Inſulam S. *Thomæ*, quæ Longitudinem habet gr. 33 10′, & D Inſulam *Sumatræ*, cujus Longitudo eſt gr. 137 10′. Differentia Longitudinum gr. 104 0′. in Anglica Milliaria converſa, pro diſtantiâ dat 6240.

2. Si duo loci non ſint poſiti ſub Æquinoctiali, ſed ſub Parallelo aliquo intra Æquinoctialem & alterutrum Polorum, hinc hoc fit in Exemplum.

In hoc Diagrammate α denotet urbem Compoſtellam in Hiſpaniâ, cujus Latitudo eſt 43° 0′, & y urbem Conſtantinopolin, quæ eandem habet Latitudinem, ſed in Longitudine differt gr. 44 0′. Diſtantiam ſi velis inveſtigare α y dimidiam differentiam Longitudinum capias αλ, ſive λ y gr. 22 0′. Tunc in Triangulo Rectangulo α λ P = y λ P, notavimus (1) α P Complementum Altitudinis Poli gr 47 0′ (2.) Angulum α P λ Semidifferentiam Longitudinum Urbium earundem gr. 22 0′, (3.) P λ α Angulum Rectum gr. 90. Hinc ut inveniatur α λ analogia eſt.

Radius gr. 90.	10. 000000.
Sinus α P λ gr. 22 0′ ″.	9. 573575.
Sinus P α gr 47 0	9. 864127.
Sinus α λ gr. 15 54 2.	9. 437702.

Ita vera Diſtantia α y eſt gr. 31 48′ 4″. Anglica ſcilicet milliaria 1908.

Problema 2.

Diſtantiam duorum locorum latitudine ſolâ differentium inveſtigare.

IN hoc Problemate duo ſunt etiam Caſus.

1. Si duo loci ſolâ latitudine diſtant, & ex eâdem parte Æquinoctiali poſiti ſint, ſubtrahenda eſt minor Latitudo à majori, & reſiduum eſt diſtantia quæſita.

Supponas itaq; Locum X habere latitudinem gr. 22 30 Boream, & locum O gr. 45 30′, differentia eſt gr. 23 20′, quæ in Anglica Milliaria converſa,

(60.

(60 milliaribus ad gradum numeratis) dat Diſtantiam duorum locorum prædictorum 1400. milliaria.

2. Si duo loci poſiti ſint, hic ex Boreali, ille ex Auſtrali Æquinoctialis parte, tunc addendæ ſunt duæ Latitudines, & ſumma dabit debitam Diſtantiam.

Quando loca eandem habent longitudinem ſed unus eſt Borealis, & alter Auſtralis.

E. g. Supponas locum O habere gr. 45 30'. Borealis Latitudinis, & locum Z habere gr. 21 0', Auſtralis Latitudinis; aggregatum gr. 66 30. in Anglica milliaria converſum, dat Diſtantiam 3990. milliaria.

Problema 3.

Ad inveniendam Diſtantiam duorum locorum & Longitudine & Latitudine differentium.

Quando Civitates habent contrariam & longitudinem & latitudinem.

IN hoc Problemate ſunt & duo Caſus.

1. Si hoc locus ſub Æquinoctiali poſitus eſt, & ille ad Polorum alterum, *Exemplo* ſit. Denotet ♪ urbem *Arim* (quæ ab Aſtrologis Arabicis, *Medium Mundi* appellatur) cujus longitudo eſt gr. 109 5', directè poſita ſub Æquinoctiali, Q verò Urbem *Quinſai*, quæ Longitudinem habet gr. 152 20', & Boream Latitudinem gr. 40 0', quarum diſtantiam oſtendit arcus ♪Q. itaq; in Triangulo Rectangulo ♪EQ dantur (1) ♪E differentia Longitudinum gr. 43 15, (2.) EQ Latitudo *Quinſai* gr. 40 0', (3) ♪EQ Angulus Rectus gr. 90, hinc inquirenda eſt Diſtantia ♪Q.

1 Quando unus locus ſub Æquinoctio poſitus eſt, & alter ad Polorum alterutrum.

Radius	gr. 90	0'	0''.	10. 00000.	Arcus ♪Q numeratus ſupra Terræ ſuperficiem gr. 56 5'. efficit 3365. Italica, ſive Anglica milliaria, & hæc eſt Diſtantia *Quinſai* ab *Arim*.
cs. EQ	gr. 40	0	0.	9. 88425.	
cs. ♪E	gr. 43	15	0.	9. 86235.	
cs. ♪Q	gr. 56	5	0.	9. 74560.	

2. Sin autem duo loci poſiti ſint extra Æquinoctium, diſtancia eorundem ſolutione Sphærici Trianguli Obliquanguli inquirenda eſt, uti demonſtrabunt hæc Exempla ſequentia.

Quando Civitates extra Æquatorem ſitæ ſunt.

Exemplum 1. Supponatur S denotare *LONDINUM*, cujus Latitudo a S eſt gr. 51 32', & T *Hieruſalem*, cujus Latitudo CT eſt gr. 32 10', differentia harum Longitudinum eſt gr. 45 30'. Quamobrem in Triangulo Obliquangulo SPT dantur (1.) PS complementum Latitudinis *LONDINI* gr. 38 28. (2.) PT complementum Latitudinis *HIERUSALEM* gr. 57 50', (3) Angulus comprehenſus SPT gr. 45 30', quæ differentia eſt longitudinis horum locorum. Ad inveniendam itaq; Diſtantiam ST hoc modo procedendum eſt per *Problema* 2. *Triang. Sphæric. Obliquang.*

Quando loca ſita ſunt extra Æquinoctialem verſus Septentrionem, vel Meridiem.

Operatio.

Radius gr. 90. 10. 000000.	Ex arcu PT gr. 57 50' 0''.	cs. PH gr. 29 6' 43''.	9. 941348.
t. PS gr. 38 28'. 9. 900086.	Aufer PH gr. 29 6 43	cs. PS gr. 38 28'	9. 893745.
cs. SPT gr. 45 30'. 9. 845662.	Reſtat HT gr. 28 43 17	cs. HT gr. 28 43 17.	9. 942984.
t. PH gr. 29 6' 43''. 9. 745748.			19. 836729.
		cs. ST gr. 38 11' 37''.	9. 895385.

Hinc datur Diſtantia ST gr: 38 11' 37'', & hoc efficit 2291. milliaria.

Exemplum 2. Supponamus etiam punctum α repræſentare urbem *COMPOSTELLAM* prædictam, quæ longitudinem habet gr. 15 20', latitudinem gr. 43 0', θ verò denotet Promontorium *BONÆ SPEI*, cujus Longitudo eſt gr. 49 20', Latitudo gr. 35 0', Auſtrina, & αθ. Denuò Diſtantia inter hoſce locos inquiratur.

Quando unus locus eſt Borealis, & alter Auſtralis.

Quare

Quare in Triangulo Obliquangulo P α θ dantur (1.) P α complementum Latitudinis *COMPOSTELLÆ* gr. 47 0′, (2.) P θ gr. 125 0′, (quod eſt aggregatum R θ latitudinis Promontorii *BONÆ SPEI* gr. 35 0′, & P R gr. 90.) (3.) angulus incluſus α P θ gr. 34 0′, qui eſt differentia longitudinum eorundem locorum. Hinc Diſtantiam α θ (ut anteà) potes deprehendere.

(1.)

Per Probl.	Radius	gr. 90 0′ 0″.	10. 000000.		gr. ′ ″.
6 Triang.	ts P α	gr. 47 0 0.	10. 030344	Ex Arcu P θ	125 0′ 0″.
Sphæric.	cs. α P θ	gr. 34 0 0.	9. 918574.	Aufer PK	41 38 17.
Obliq.	t. P K	gr. 41 38 17″.	9. 948918.	Reſtat K θ	83 21 43.

(2.)

Per idem Probl. 6.	cs. P K	gr. 41 38′ 17″.	9. 873528.
	cs. P θ	gr. 47 0 0.	9. 833783.
	cs. K θ	gr. 83 21 43.	9. 062946.
			18. 896729.
	cs. α θ	gr. 83 56 41.	9. 023201.

Ergò datur Diſtantia eorundem locorum milliaribus Anglicis 5036.

In animo noſtro quandoq; fuit de umbrarum arte quaſi in Synopſi aliquid diſſeruiſſe, ut enuclearemus Candido Lectori methodum, quâ Scioterica omne genus Horologia doctrinâ Sphæricorum Triangulorum in Plano, quovis modo inclinato, deſcriberentur; ſed cum alia mentem aliò negotia trahant, miſſum facimus, eâ tamen lege, ut ſi quando hæc Typis ſecundis committantur, non ſolùm noſtro, ſed voto forſitan tuo ſatisfacturi ſimus, ut & aliquid præterea Operis aggreſſuri, quod Mathematicæ candidatis uſui futurum eſſe arbitramur.

DOC-

DOCTRINÆ SPHÆRICÆ

APPENDIX.

De variis Propoſitionibus valdè neceſſariis.

Uſus Tabularum Primi Mobilis.

Quamvis jamdudum Doctrinam Sphere per ſolutionem Sphæricorum Triangulorum abundè tractavimus, nihilominùs ut ad illius praxin expeditiùs perveniamus, hic quomodo Propoſitiones maximè neceſſarias, ante hac exhibitas, per Tabulas facillimas ad hoc ſupputatas expediamus, demonſtrabimus; & in ſequent. 2. Capitibus, de ASTRONOMICA CHRONOLOGIA, *&* COMPUTO ECCLESIASTICO *differemus.*

CAP. I.

POſt Tabulam Logarithmorum Logiſticorum ſequitur Tabula *Declinationum* & Angulorum *Ecliptica & Meridiani*, & ſequentibus paginis, Tabulæ *ASCENSIONUM Rectarum*, & *Differentiarum Aſcenſionalium*, in quibus non multum deeſt ad totam Doctrinam Sphæricam, quantum in his Tabulis neceſſe erit expediendam. Attendat igitùr *Aſtrophilus* ad ſequentia hujus Capitis Præcepta, & exinde addiſcat ut ſequitur.

Quomodo Declinationes & Anguli Meridiani ex Tabulis dignoſcantur.

Sect. 1. *Declinationes* & *Anguli Meridiani* inveniuntur per Signum in fronte vel Calce, & gradum in latere dextro, ſi Signum ſit in Calce, ſiniſtro verò ſi ſit in fronte; Angulus enim communis exhibet utrumq; quæſitorum ſub ſuo titulo, Partem proportionalem & hic & ubicunq; opus erit adhibendo, ut in *Logiſticâ* noſtrâ *Aſtronomicâ* docetur, quod ſemel monuiſſe ſufficiat.

Exemplum, Si ponatur gr. 0 0′ ♊ in Meridie, erit ex Tabulâ

Declinatio	gr. 20 13′ 22″.
Angulus Meridianus	gr. 77 42.

Tab. fol. 11.

Aſcenſio Recta, quâ methodo inveſtigetur.

Sect. 2. *ASCENSIO RECTA* ex Tabula ſequenti habetur, quærendo Signum in fronte, & gradum in margine ſiniſtro; Angulus enim communis exhibet Aſcenſionem Rectam.

Exemplum. ♊ 0° 0′. dabit Aſcenſionem Rectam gr. 57 48′ 7″.

Differentia Aſcenſionalis, & quomodo inveniatur.

Sect. 3. *DIFFERENTIA ASCENSIONALIS* cujuſlibet partis Zodiaci invenitur per gradum Declinationis in Margine Siniſtro, & gradum Elevationis Poli in fronte; Angulus enim communis (duplici adhibitâ parte proportionali ſi opus fuerit) exhibet Differentiam Aſcenſionalem quæſitam.

Exemplum. Differentia Aſcenſionalis ♊ 0. ex Declinatione priùs quæſitâ gr. 20 13′ 22″. ſub Elevatione Poli gr. 51 32′. erit gr. 27 37′.

Tabb. fol. 30.

Aſcenſio Obliqua, quomodo indagetur.

Sect. 4. Poterit etiam per Aſcenſionem Rectam & Differentiam Aſcenſionalem, inveniri Aſcenſio Obliqua hoc modo. Si punctum Zodiaci cujus Aſcenſio obliqua quæritur ſit in Borealibus Signis, Differentia Aſcenſionalis, Aſcenſioni Rectæ ſubtrahatur; ſi in Auſtralibus addatur, & emerget Aſcenſio Obliqua. Ut in Exemplo, quæritur Aſcenſio Obliqua ♊ 0. datur ex prioribus ejus Aſcenſio Recta gr. 57 48′ 7″, & Differentia Aſcenſionalis gr. 27 37′. ſubducantur igitur gr. 27 37′ (quia Signum eſt Boreale) ex gr. 57 48′; & reſiduum gr. 30 11′, erit Aſcenſio Obliqua.

eſcenſio bliqua.

Sin autem quæritur Deſcenſio Obliqua, adhibeatur ut ſupra Differentia Aſcenſionalis, contrario tamen titulo. Ut in hoc Exemplo, peractâ operatione, emerget Deſcenſio Obliqua, gr. 85 25.

łodus onver- ndi Ho- s & Min. mporis, gradus min. Æ- ıatoris, è con- a.

Hoc in loco etiam ſunt alia docenda in ſequenti Tabularum uſu neceſſaria; Tabula igitur illa [convertendi horas & min. temporis in gradus & min. Æquatoris] quam anteà propoſuimus, hic addiſcat Calculator uti, & perſiam tam tempora horaria in tempora Æquinoctialia convertere, quam hæc in illa; quam praxin ob facilitatem ſolis Exemplis docere ſufficiet.

Exemplum. Convertantur gr. 40 1′ 0″, in Scrupula horaria. Hæc Tabula hujuſmodi numeros exhibet.

	Ho.	′	″
Gr. 40.	2 40		
Scr. 1.	0	4	
Sec 0.		0	0.
Summa	2 40	4	0.

Viciſſim ſi ſint Horæ 2 40′ 4″ in tempora Æquinoctialla convertendæ, contrario modo procedendum eſt, & Operatio erit hujus modi.

	Gr.	′	
Ho. 2 40′.	40	0	
4		1	0.
Summa.	40	1	0.

Aliis Exemplis opus non erit, reſpiciat tantummodò *Calculator* ad titulos in fronte Tabulæ expreſſos, hi enim titulos excerptorum indigitant.

odus in- niendi um Cœ- nedium.

His præmiſſis in proclivi erit Aſcenſionem Rectam *Medii Cœli*, & indè ipſum *Cœli* medium invenire. Additis enim horis à Meridie (in Tempora Æquinoctialia priùs converſis) ad Aſcenſionem Solis Rectam, conflatur Aſc. Recta Medii Cœli, quæ inter areas Tabulæ Aſcenſionum Rectarum dabit *Medium Cœli.*

Exemplum. Sit Sol in gr. 13 26′ 10″. ♋. Sitq; tempus à meridie Hor. 18. 0′. Aſcenſio Solis Recta eſt gr. 104 36′. Tempus converſum eſt gr. 270 0′, His additis, emergit (poſt ablationem Circuli gr. 360.) gr. 14 36′, pro Aſcenſione Rectâ Medii Cœli, cui reſpondet in Tabulâ gr. 15 52′ ♈, vid. ipſum Cœli medium.

nctum cen- ns, quâ thodo eſtige- ob. fol.

Sect. 5. Sin punctum Aſcendens quæris, facilè quidem ad Aſcenſionem illius Obliquam pervenies, ſolâ additione 90. graduum ad Aſcenſionem Rectam Medii Cœli, inde autem Aſcendens perquirere poteris ex Tabulis Obliquarum Aſcenſionum ad Elevationem Poli loci conſtructis.

Exemplum. Aſcenſio Recta Medii Cœli ex prioribus invenitur gr. 14. 36′. cui addatur gr. 90. proveniet Aſcenſio Obliqua Horoſcopi gr. 104. 36′, cui reſpondet in Tabulâ (ad Elevationem *LONDINI* compoſita) gr. 7. 16 ♌, pro loco Aſcendentis, illo tempore.

itudi- Medii li, In- igatio.

Sect. 6. *Altitudinem Medii Cœli* hoc modo venabere. Ejus Declinationem per Sect. 1. inventam, in Borealibus Signis altitudini Æquatoris adde, in Auſtralibus ſubtrahe, & emerget quæſitum.

Ut ſit gr. 29 45′. ♐ in Medio Cœli; ejus Declinatio eſt gr. 23 31′ Meridionalis. Altitudo Æquatoris *LONDINI* eſt gr. 38 28′, à quâ Declinationem aufero, & relinquitur Altitudo Medii Cœli gr. 14. 57′.

umSe- ur- enu- re. Tab. 50.

Sect. 7. *Arcus* etiam *Semidiurnus* ex *Differentiâ Aſcenſionali* ſic inquiritur. In borealibus Signis addatur Differentia Aſcenſionalis 90. gradibus; in auſtralibus ſubtrahatur, & emerget Arcus quæſitus, qui ſi in tempus convertatur, dabit tempus Semidiurnum. Sit in ♊ 0. *Differentia Aſcenſionalis* eſt gr. 27 38′. Addantur gr. 90. erit Arcus Semidiurnus gr. 117 38′, quod in tempus converſum facit Hor. 7 50′ 32″. pro tempore Semidiurno.

Sect 8. Ex Tabulis Primi Mobilis *ANDREÆ ARGOLI* Tabulam Declinationum omnium punctorum Eclipticæ cum gradibus 9. Latitudinis, tàm Septentrionalis quam Auſtralis tranſcripſimus.

Primùm ingredere Tabulam Declinationum, inveniendo latitudinem in fronte, Signum & gradus in primâ Columnâ deſcendente, vel ultimâ aſcendente, prout Signum monſtrabit, & in angulo communi venabimur Declinationem puncti quæſiti.

Modus inveſtigandi omnium punctorum Eclipticæ, Declinationem. Tabb. fol. 12.

Exemplum. Quæratur *Declinatio* gr. 15 ♌ cum latitudine Septentrionali grad. 1. intro Tabulam, & quia invenio Signum in calce, in Columnâ aſcendente è regione gr. 15. reperitur *Declinatio* ſub Columna latitudinis 1. gr. 17 21′, ſub latitudine gr. 2. gr. 18 18′. ſub Col. gr. 3. latitudinis, gr. 19 15′. Et ſic procedendum eſt uſq; ad gr. 9. latitudinis. Eodem prorſus modo invenietur *Declinatio* cum *Latitudine Auſtrali*, nam è regione gr. 15 ♌, ſub Columnâ gr. 1. latitudinis, Declinatio eſt gr. 15 26′, ſub gr. latitudinis 2 gr. 14 28′, ſub gr. 3. latitudinis, gr. 13 31′.

Sect. 9. Proximè poſt Tabulas *Declinationum*, Tabulam *Aſcenſionum Rectarum* ad gradus 9. latitudinis, tàm Septentrionalis, quàm Meridionalis ſubjunximus, quarum uſus eſt valdè facilis, nam ingrediendo cum Signo & gradu in primâ Columnâ ad ſiniſtram, & cum gradu latitudinis in fronte, in angulo communi venamur Aſcenſionem quæſitam.

Modus perquirendi Aſcenſionem Rectam. Tabb. fol. 18.

Exemplum. Sit inquirenda Aſcenſio Recta gr. 15 ♉, intro igitur Tabulam, & invenio Aſcenſionem Rectam cum latitudine gr. 1. Sept. gr. 42 13′. cum gr. 5. latitudinis meridionalis gr. 44 2′. item gradus 10 ♌ cum Latitudine Sept. unius gradûs habent Aſcentionem Rectam gr. 132 45′. cum latitudine 2. Sept. gr. 133. 2. Et ſic deinceps in reliquis gradibus.

Sect. 10. Denique ut inveniatur *Aſcenſio obliqua*, utere hoc Exemplo.

Quæratur Aſcenſio Obliqua gr. 10 20′. ♊. ſub Elevatione Poli *Londinenſis* gr. 51 32′. è directo gr. 10. ♊, Aſcenſio eſt gr. 37 43′ 56″, in gr. 11 ♊ Aſcenſio eſt gr. 38 33′ 19″, Differentia 49′ 23″, de quibus proportionalitèr pro min: 20. veniunt 16′ 28″, quæ addita Aſcenſioni ſumptæ cum gr. 10. id eſt gr. 37 43′ 56″, conſtituent Aſcenſionem Obliquam gr. 38 0′ 24″.

Aſcenſionem Obliquam alitèr invenire.

Deſcenſiones Obliquæ indagantur ſumendo Aſcenſiunes Obliquas loci oppoſiti cum hâc conditione, quod ſi quæratur Deſcenſio in Signis Borealibus, à datâ Aſcenſione loci oppoſiti ſubtrahatur Semicirculus, & relinquitur Deſcenſio. In Signis verò auſtralibus datæ Aſcenſioni loci oppoſiti addatur idem Semicirculus.

CAP. II.

DE CHRONOLOGIA ASTRONOMICA.

HActenus de Doctrinâ Sphæricâ in his Tabulis neceſſaria; quæ autem pleniùs deſiderantur, ſequentia Præcepta Libri 5. ubi de Luminarium Parallaxibus agemus, hanc lacunam ſupplebunt. Nunc de *Aſtronomicâ Chronologiâ* agendum eſt, quam ita hic accipi volo, ut Epocharum in Tabulis Aſtronomicis uſualium capita indicet, & exterorum annos ad noſtros Julianos & viciſſim reductione abſolvat, cui negotio Tabulas aliquot appoſuimus, eà facilitate exhibitas, ut operoſâ praxi non indigeant. Primò enim Epocharum Celebriorum Synopſis præmittitur, quæ indicat, quo die Anni Juliani cujuſq; Epochæ initium accidit; deinde Converſionem *Annorum* tàm *Julianorum*, quàm *Egyptiacorum*, *Perſicorum* & *Arabicorum*, ſeu *Turcicorum* in Dies, quam ſeu communem omnium Annorum menſuram proponimus. Et cum iis, Anni Gregoriani anticipationem appoſuimus; & hæc quidem brevitèr enunciare ſufficiet. Pleniorem de his rebus notitiam qui velit, *ALSTEDII Encyclopædiam*, *KEPLERI Rudolphinas*, alioſq; Autores conſulat. Nos ad Exempla tranſeamus.

Tab. fol. 78.

Tab. fol. 79.

Exemplum. Scire deſidero quo tempore in Turcarum Computo *Junis* dies 10. Anni 1665. accidit. Praxis eſt hujus modi.

Anni completi ſunt 1664. qui hoc modo convertuntur in dies.

Figuræ in Tabulâ annorum Julianorum poſt lineas ſunt Decimæ Dierum, ideoq; quod ſupereſt omittendum erit.	1000	365250.
	600	219150.
	60	21915
	4	1461.
	Maius Compl.	151.
	Dies	10.
	Summa	607937.

Ab hâc ſummâ ſubtrahatur dies Julii 15. Anno Chriſti 622. quod tempus in Dies converſum facit 227016. auferendæ à ſummâ

Reſiduum	380921.
Anni Arabici 900. auferunt	318930.
Reſiduum	61991.
Anni Arabici 150. auferunt	53155.
Reſiduum	8836.
Anni Arabici 24. auferunt	8505.
Reſiduum	331.
Menſis DULKADATI aufert	325.
Reſtat dies Menſis DULHAIATI ſeq.	6.

Ergò propoſitus 10. *Junii* Anni 1665. eſt dies 6. Menſis *Dulhajati*, Anni 1075. *Mahumetis*, ſeu Arabum *Hegyræ*.

Exemplum. 2. Scire cupio in quem diem Anni noſtri Juliani incidit Dies 17 Menſis *Tyrma* in Anno 1069. completo Æræ Perſicæ à *Jeſdagirde*.

Hujus Epochæ principium eſt ab Epochâ Chriſti in diebus completis.

	230639.
1000. Anni Perſici dant	365000.
60. Anni Perſici dant	21900.
9. Anni dant	3285.
CHORTAT completus dat	90.
Dies completi	16.
Summa.	620930.
1000. Anni Juliani	365250.
Reſtant	255680.
600. Anni Juliani	229150.
Reſtant	26530.
60. Anni	22915.
Reſtant	3615.
9. Anni dant	3287.
Reſtant	328.
October Completus	304.
Reſtant	24.

Accidit ergò in Anno Juliano à Chriſto 1670. die 24 *Novembris*.

Exemplum. 3. Scire volo in quem diem Anni Juliani incidit Dies 7. Menſis *PAOPHI* in Anno 1984. *Æræ Ægyptiacæ* à morte *Alexandri*.

Hujus

Hujus Epochæ initium eſt ab Epochâ *Periodi Julianæ* in diebus completis.

		1603397.
1000. Anni Ægyptiaci exhibent		365000.
900. Anni		328500.
80. Anni		29200.
3. Anni		1095.
Menſis THOTH completus		30.
Dies		7.
	Summa.	2327229.
6000. Anni Juliani exhibent		2191500.
	Reſtant	135729.
300. Anni Juliani exhibent		100575.
	Reſtant	26154.
70. Anni		25567.
	Reſtant	587.
1. Annus Julianus exhibet		365.
	Reſtant	222.
Julius completus		212.
	Reſtant	10.

Per Tab. convertendi dies in Annis Ægyptiis fol. 79.

Per Tab. convert. dies in annis Julianis fol. 79.

Accidit igitùr Anno Julianæ Periodi 6371. die 10. *Auguſti*.

Exemplum 4. Cupio ſcire in quem diem Anni Juliani à Mundi exordio, incidit Dies 2. Menſis Tybi in Anno 840. Æræ Ægyptiacæ à *Nabonaſſaro*.

Hujus Epochæ initium eſt ab Epochâ Mundi in diebus

		1169586.
Anni Ægyptiaci 800. Exhibent		292000.
Anni Ægyptiaci 30. Exhibent		10950.
Anni Ægyptiaci 9. Exhibent		3285.
Menſis Tybi Completus		120.
Dies 2.		2.
	Summa.	1475943.
Anni Juliani Completi à Mundo condito. 4000.		1461000.
	Reſtant	14943.
Anni Juliani Completi à Mundo condito. 40.		14610.
	Reſtant	333.
OCTOBER Completus		304.
DIES 29.		29.

Ergò accidit Anno Mundi 4041, die *29 Novembris*, Stylo veteri.

Hæc qui intellexerit ſimili methodo convertere etiam poteſt aliarum Epocharum Annos, in Annos noſtros Julianos, & viciſſim.

Anticipationem Calendarii Gregoriani determinare. Tab. fol. 78.

Anticipatio Calendarii Gregoriani faciliùs obtinetur. Ingredienti enim cum Annis Chriſti Completis in Tabulam Anticipationis ejuſdem Anni, apparet numerus Dierum tempori in Anno Juliano addendus, ut cum Gregoriano conveniat.

CAP. III.

DE COMPUTO ECCLESIASTICO.

Notæ vulgares quinq;.

PRæmiſſis iis quæ computationem in Annis variarum Nationum concernunt, jam Notas Annorum Julianorum vulgares, & quomodo ex iis Feſta quæ vocantur Mobilia, indagentur, docebimus. Notæ quidem vulgares ſunt quinq;.

quinq; *Cyclus Solis*, *Cyclus Lunæ*, qui & *Aureus Numerus* appellatur, *Indictio Romana*, *Litera Dominicalis*, & *Epacta*. Tres priores continuo unitatis incremento conficiuntur, reliquæ duæ ob diverſam Anni Gregoriani à Juliano formam, ſuas ſedes & ordines aliquando mutant.

Sect. I. *Cyclus Solis* eſt curriculum 28. Annorum, quo peracto Feſta quæ fixas in Calendario ſedes habent, iiſdem feriis occurrunt. Invenitur autem ſic. Ad annum Chriſti currentem Numerum novenarium adde, ſummam per 28. divide, & quod diviſione facta ſupereſt, erit Cyclus Solis in eo anno.

Exemplum. Ad Annum Chriſti 1665. addo *Novenarium*, & emergit 1674. hanc ſummam per 28. divido, & exibit in quotum 59. index ſcilicet Revolutionum hujus Cycli peractarum, reſiduum autem 22. eſt Cyclus Solis ad annum Chriſti, 1665.

Sect. 2. *Cyclus Lunæ*, ſeu *Aureus Numerus* eſt Revolutio annorum 19. quibus peractis in eadem proximè Zodiaci puncta reſtituuntur Aſpectus Lunæ ad Solem. Ejus inventio talis eſt. Annis à Chriſto Deo addatur unitas, & ſumma per 19. diviſa, reſiduum erit Aureus Numerus illius Anni.

Ut ſi quæratur Aureus Numerus anni 1665, additâ unitate prodit 1666. hoc numero per 19. diviſo, exit quotus 87. qui Periodos hujus cycli tranſactas Indicat, & reſiduum 13. eſt Aureus Numerus.

Sect 3. *Indictio Romana* eſt Periodus annorum 15. indicans annum quo Romanis Tributa ferri ſolebant, ſimulq; quot anni à ſolutione Tributi effluxerant. Hic numerus quamquam hodiè in Calendario locum retinet, nullius tamen eſt uſûs, ſed Romanis à rerum dominio cedentibus, jamdudum exolevit. Inquiritur autem ſic. Annis Chriſti adde ternarium, ſumma per 15. diviſa, reſiduum erit Indictio illius Anni. Ut in anno 1665, ſi addatur *ternarius* prodit 1668. hâc ſummâ per 15. diviſâ, exit quotus 111. monſtrans Revolutiones hujus Periodi tranſactas, & reſiduum 3. eſt Indictio illius Anni.

Duas reliquas non calculo ſed Tabulis indagamus, & quidem duplici viâ, viz. quæ utriq; Calendario, tàm Juliano quam Gregoriano inſerviat, quæ ut non omninò ſimilem anni formam ſortiuntur, ita in his Feriarum & Feſtorum indicibus variare neceſſe erit. Tabulæ autem indicant quomodo in utroq; Calendario *Literæ Dominicales*, *Cyclo Solis*, & *Epactæ* Aureis numeris reſpondeant, in veteri quidem Calendario perpetuo, in novo autem ad annum 1700. excluſivè; in poſteriori autem paginâ, pro Novo Calendario, ad annum 1900. excluſivè extenditur, nec difficile erit ope Tabulæ anticipationis etiam ulterius progredi, ſi emendati Calendarii rationem probè noveris.

Sect. 4. *Litera Dominicalis* eſt una ex ſeptem primariis Alphabeti literis, A B C D E F G, quæ indicat quo die anni Juliani unaquæq; Dominica accidit. Invenitur autem ex ſuâ Tabulâ cum Cyclo Solis, idq; in anno veteri perpetuo valet: ex Tabula autem ſequente juxta annum Chriſti currentem in anno Gregoriano, & è regione Cycli Solis reſpondet *Litera Dominicalis*. Ut in Exemplo Anni 1665. quoniam *Cyclus Solis* eſt 22. erit *Litera Dominicalis* in Calendario Juliano A, in Gregoriano D.

Sect. 5. *Epacta* eſt Numerus Dierum, quibus Annus Solaris 365. dierum, ſuperat annum Lunarem 354. dierum; Epacta ergò primi Anni eſt 11. ſecundi 22, &c. abſectis 30. quoties excreverit. Invenitur cum Aureo numero non ſecus ac Litera Dominicalis cum Cyclo Solis. Ut In Exemplo anni 1665. quoniam *Aureus Numerus* eſt 13. *Epacta* erit in Anno Juliano 23. in Gregoriano 13.

Explicatis Notis vulgaribus ad Feſta accedamus, & primo Mobilia, inter quæ præcipuum locum obtinet Feſtum Paſchatis; cui negotio Tabulam Paſchalem exhibuimus, ſequenti modo tractandam.

Sect. 6. Si in anno Juliano *Feſtum Paſchatis* invenire deſideras, cum Literâ Dominicali & Aureo numero Tabulam ingredere, & è regione reſpondebit dies Anni Juliani, quo *Paſcha* contingit. Sin autem hoc ipſum quæris

in

in anno Gregoriano, loco Aurei Numeri, Epacta Anni Gregoriani adhibenda erit, & procedendum ut priùs.

Exemplum. Anni Juliani 1665. *Litera Dominicalis* eſt A, Aureus Numerus 13. ergò *Paſcha* erit *Mart.* 26. Anni Gregoriani Litera Dominicalis eſt D, Epacta 13, ergò Paſcha *Apr.* 5.

Jam feſto Paſchatis invento, cætera Feſta mobilia ſe ſtatim expedient, ut vel hujus Computi imperitis notum eſt.

Sect. 7. Eodem introitu poteſt etiam Domini adventus haberi ſub ſuo titulo. In præſenti Exemplo anni 1665. accidit in Calendario Juliano die 3. *Decembris*, in Gregoriano, die 29 *Novembris*.

Sect. 8. *Feſta* quæ vocantur *fixa*, ſingulari Tabulâ exhibuimus unà cum literis ferialibus ad omnes dies Anni Juliani, unde ex notitiâ Literæ Dominicalis nullo ferè negotio conſtabat quâ feriâ unumquodq; Feſtum, ſeu dies Menſis contingat. Ut in anno 1665, ſi quæratur quâ Feriâ 10. dies *Martii* contingat, hoc modo eſt agendum. Cum literâ Dominicali illius anni, quæ in Computo veteri eſt A, in novo D, introeatur Tabula Feſtorum circa decimum *Martii* diem, & hoc modo invenietur Dies Dominica proximè antecedens, In anno veteri *Mart.* 5. in anno novo *Mart.* 8. unde non difficile erit ſtatuere diem decimum *Martii* eſſe in Anni formâ Julianâ *die Veneris*, in Gregorianâ, die *Martis*. Et hæc methodus in reliquis valet. Tab. fol. 82. & 83.

DOCTRINÆ SPHÆRICÆ

FINIS.

THEORIA

PLANETARUM

NOVA.

Liber Quartus.

In quo, duo magna Mundi Syſtemata, nempè *Ptolemaica* & *Tychonica*, quæ Aſtronomi Seculis ſuperioribus commenti ſunt, facilè confutantur; veriq; motus Planetarum ſuper Hypotheſin *Copernicanam*, novâ methodo Geometricè demonſtrantur.

Omnibus modis,
Obſervationibus exquiſitiſſimis Nobiliſſimi Dani *TYCHONIS BRAHÆI* congruentes.

Authore

VINCENTIO WING Mathematico.

Præſtantia Hypotheſis Copernici hinc patet,
Quod unico Terræ motu diurno temperato, plurimos alios motus, genuinis & propriis Planetarum motibus in eodem ſubjecto contrarios, eoſq; ineffabilis & inſanæ celeritatis, è Mundo tollit, unico ejuſdem Terræ motu annuo, omnes veterum *Epicyclos*, cæcâ ratione ad Solis motum alligatos, omnes præterea illorum *Eccentros Eccentrorum*, omnes *Inclinationum*, *Deviationum*, *Reflectionumq;* circulos dejicit.

LONDINI,
Typis *J. M.* pro *G. Sawbridge* 1669.

Manilius Lib. III. Aſtronomicôn.

Fata quoque & vitas hominum ſuſpendit ab Aſtris,
Quæ ſummas operum partes, quæ lucis honorem,
Quæ famam adſtererent, quæ nunquam feſſa volarent;
Quæ quaſi per mediam Mundi præcordia partem
Diſpoſita obtineant Phœbum, Lunamq; vagaſq;
Evincant Stellas, necnon vincantur ab ipſa.
His Regnum Natura dedit, propriaſque ſacravit
Vnicuique vices, ſanxitque per omnia, ſummam
Vndique ne Fati ratio traheretur in unam.

CAP. I.

DE SYSTEMATE MUNDI VISIBILIS.

QUoniam de motibus Planetarum hoc in Libro diſſerere conſtituimus, primò tanquam totius operis fundamentum oculis ſubjiciemus probatum iſtud Mundi Syſtema quod per ſe abſq; quibuſcunq; commentitiis ſubſidiis ſatis valet omnes motus & phænomena corporum cœleſtium ſolvere. Si *PTOLEMÆI* Hypotheſin reſpiciamus, qui annuum Solis motum circa Terram ſupponit, Terramq; centrum eſſe circa quam rotatur, ineptiſſimam videbimus, quippe excogitandi ſunt innumeri tùm motuum circuli fictitii, quibus impleatur Cœlum, quod à ratione, ipſaq; naturâ abhorret. Quod autem ad novam ſpectat *TYCHONIS* Hypotheſin, ingenioſam magis inveniemus quàm veram, cùm viderimus quibus ſubterfugiis uti coguntur, qui Phænomena Cœleſtia ejus ope demonſtrare conantur. Nos autem unicam illam Copernicanam ſequimur, ubi Sol eſt centrum Mundi, circa quem omnia cœleſtia corpora volvi evincemus, & ad oculum demonſtrabimus; atq; annuam inæqualitatem, quæ in illorum motibus apparet, non eſſe verum aliquem in illis motum, ſed merum Phænomenon ortum ex annuo Terræ motu: cum enim Terra (unde omnium Planetarum loci aſpiciuntur) perpetuò in Eclipticâ circa Solem moveatur, ut & cætera corpora cœleſtia, neceſſariò ſequitur (motibus illorum Terram non centrum ſuorum Orbium reſpicientibus) fieri non poſſe quin appareat nobis manifeſta ratio dictæ inæqualitatis, præcipuè reſpectu perpetui motûs Terræ, & revolutionis aliorum Planetarum motibus diſcrepantium. Nam cum quotidiè etiam ſenſui pateat Planetas aliquando progredi, aliquando regredi, aliàs ſubſiſtere videri, & quantitatem progreſſûs apparere majorem in *JOVE* quàm in *SATURNO*, in *JOVE* minorem quàm in *MARTE*, rurſus majorem in *VENERE* quàm *MERCURIO*, nec ita modò, verùm etiam *SATURNUM* ſæpiùs quàm *JOVEM* eſſe retrogradum, *MARTEM* rariùs quàm aut *JOVEM* aut *SATURNUM*, *VENEREM* autem quàm *MERCURIUM*, quid niſi motus Terræ eſt, aut eſſe poteſt hujus cauſa. Quæ omnia, & alia quampiurima ad motus & phænomena Planetarum pertinentia, per hanc Hypotheſin ita dilucidè ſenſui demonſtrantur, ut nemo ſanus de hujus Hypotheſeos veritate quoquo modo dubitare poſſit.

Hypotheſis Ptolemæi naturæ aliena.

Videtur par abſurdum corpori cœleſti affingere viam irregularis figuræ. Ricciol. fol. 518.

Hypotheſis Tychonis magis ingenioſa quàm vera.

Hypotheſis Copernicea omninò vera & legitima, ubi Sol in centro hæret.

Terram moveri, Solem ſtare.

Omnia Corpora cœleſtia, circa Solem moventur.

Habet Hypotheſis Kepleri & Bullialdi multas perfectiones, videlicet ſimplicitatem viæ Planetariæ per unicam lineam Ellipticam. Ricciolus Tom. 1. f. 535.

CAP. II.

DE DEFINITIONE, SUBJECTO FINE, & PRINCIPIIS Aſtronomiæ.

DOctrina Motuum Cœleſtium, quam Græci ἀστρονομίαν appellant, eſt vel θεωρητικὴ, vel πρακτικὴ, de quibus ordine agemus, prius de Theoretica; quæ eſt Doctrina per quam (quaſi per Organa manufacta) motus Planetarum apertè ob oculos ponuntur. Nam veluti in *SPECULO* intuemur formam, ſpeciem, & motum corporis, ita per hanc Doctrinam Theoreticam, non modò quâ formâ, quoq; ordine diſponantur Orbes & Sphæræ Planetarum videre, ſed & omnia Planetarum communia accidentia ſubitò apprehendere poſſumus, & exinde omnes motus apparentes ſolvere.

Aſtronomiæ definitio & diviſio in duas partes.

ubj.ctum hujus Theoreticæ Doctrinæ ſunt proprii motus Planetarum, quos motu ſecundos appellamus, quia ex adverſo apparentis Iſtius motus ab Oriente verſus Occidentem (qui eſt Phænomenon ortum ex diurno motu Telluris) propriis eorum motu, de quibus hic tractandum, ab Occidente tendunt Orientem verſus

Finis primarius hujus Scientiæ eſt ſolvere cœleſtia Stellarum phænomena, & veros Illorum locos quovis tempore propoſito invenire. Secundarius eſt *Situm, Ordinem* & *Formam* Mundi, & partium ejus inveſtigare.

Principia hujus Scientiæ, quibus innitimur in Phænomenis proprii motus Planetarum ſolvendis, ſunt ſex ſequentia.

1. *Solem collocari in Mundi medio, in vel juxta Centrum Sphæræ octavæ, nullumq; habere motum circularem, præter unum centralem.*
2. *Singulos primarios Planetas in propriis Circulis moveri circa Solem, & periodicas Revolutiones ſuis ſtatis & conſtitutis temporibus perficere.*
3. *TERRAM eſſe ex numero Planetarum, & motu annuo circa Solem, ſuum Orbem medium deſcribere inter Orbes MARTIS & VENERIS.*
4. *Secundarios Planetas rotari circa Primarios, reſpicientes illorum corpora tanquam communes ſuos NODOS, ſive Centra.*
5. *Lunam ſecundarium Planetam moveri circa Terram, tanquam centrum proprium, unde annuus Terræ motus non modò ad Terram refertur, ſed conſequentèr ad totam Sphæram ſui Planetæ.*
6. *Ut Terra, primarius Planeta cingitur Lunæ Sphærâ, ita quoſdam, ſi non omnes Planetas primarios, ſuas habere Lunulas, ſive Comites.*

SYSTEMA MUNDI VISIBILIS.

Sublato omni ſcrupulo de terræ motu, putemus, totam materiam cœli in qua Planetæ verſantur, in modum cujuſdam vorticis, in cujus centro eſt Sol, aſſiduè gyrare, ac ejus partes Soli viciniores celeriùs moveri quàm remotiores, Planetaſque omnes (è quorum numero eſt Terra) inter eaſdem iſtius cœleſtis materiæ partes ſemper verſari, &c. Des Cartes princip. Philoſ. Part. 3. Artic. 30.



& repellendo, retinet, retinendo circumducit. *Kepler.* Epit. Aſtr. Lib. 4. fol. 519.

IN hâc Figurâ lucis origo *SOL* in ipſo Mundi noſtri centro ponitur, circa quem in primo Orbe movetur *MERCURIUS*, tum *VENUS*, in medio autèm Orbe fertur *TERRA*, circa quam *LUNA* ſecundarius Planeta

Planeta volvitur in Orbe parvulo inſtar Epicycli: ſupra *TERRAM* ponitur Orbis *MARTIS*, ſupra illum Orbis *JOVIS* quatuor Planetis Secundariis cinctus, ſupra *JOVEM* proximus ordine *SATURNI* Orbis, qui ſeptem Planetarum altiſſimus. Deniq; ſupra ſit Orbis fixarum Stellarum, inter quem & *SOLEM*, ſeu centrum Mundi (vel potius Syſtematis noſtri Planetarii) immenſa interjacet diſtantia.

Phythagoras primus fuit, qui hoc Syſtema mundanum amplexus eſt.

In primâ hujuſce 3. Libri parte, cuivis non cæcutienti patebit nos hic nihil vero diſſimile docuiſſe. Primus omnium *PHILOLAUS PHYTHAGORAS* hanc opinionem tanquam veram amplexus eſt, cujus acumen, & concipiendi celeritas egregia fuit, quanquam in ætate barbarâ vixerit; at poſtquam magnus ille *ARISTOTELES* vana ſua commenta Mundo obtuliſſet, præclara Pythagoræ veritatis indagatio obſcurari cœpit, & in tenebris per multas annorum centurias ſepulta jacuit, imò ad hanc uſq; poſtremam ætatem, cum *DEUS* excitavit inclytorum quorundam Heroum ingenia, quæ veritatem apertiùs expromererit, planiùſq; retegiſſe videantur, adeo ut hæc jam opinio ab omnibus Aſtronomiæ peritiſſimis pro verâ tenetur; nam ſicut omnium ubiq; Aſtronomorum obſervationes hoc evidentèr confirmant, ita etiam rationi maximè conſentaneum eſt *Solem* Planetarum digniſſimum, digniſſimum poſſidere locum, quem centrum eſſe neminem ſanæ mentis dubitare.

Solem in centro Syſtematis Planetarii eſſe.

De officio Solis in Mundi centro.

Porro ſi Sphæricam Mundi formam priori Syſtemate expreſſam reſpiciamus, nonne maximè probabile eſt *Solem*, qui lucem & calorem ad omnes undiq; Planetas diffundit, nullibi potius quàm in centro collocari, undè facillimè radiorum miniſterio alas in omnes peripheriæ partes emittere poſſit, quod aliàs, haud ita factu facile, ſi vel in ipſo perimetro, vel ubivis prætèrquam in centro poneretur. Deniq; nonne certiſſimum eſt Planetas ♀ & ☿ nullum præter *SOLEM* centrum reſpicere, adeoq; cum intra Orbem *TERRA* centrum verſus ferantur, nunquam nobis in hoc medio Planetâ locatis apparere poſſunt in Quadraturâ, aut Oppoſito Solis. Atq; hoc præcipuè in cauſâ fuit quod Antiqui aſſignabant illis motum medium æqualem Solari, & motuum inæqualitatem ad fictos Epicyclos referebant. Idem dici poteſt de tribus cæteris Planetis primariis extra Orbem Terræ, quanquam à capitibus vulgaribus haud ita facile deprehendatur; atque ad hujus aſſertionis ulteriorem confirmationem plurimæ rationes Aſtronomicæ afferri poſſunt, ſed miſſis illis, ſpero ſequentes in hoc libro demonſtrationes ſatis habituras virium ad pervicaciſſimos oppugnatores refellendos, Quum itaq; *SOL* unus ſit *Mundi oculus*, & fons ipſe puræ lucis, meritò illi centrum adſcribitur, onde concavos Planetarum & Stellarum Orbes undiq; angulis rectis intueatur.

Cur Planetæ inferiores nunquam nobis in Quadraturâ aut oppoſito Solis apparere poſſint.

Sol mundi oculus & fons lucis.

Poſt brevem hanc in centro reſpirationem ad circumferentiam tendemus, ubi occurrunt obſervationi noſtræ ſeptem Planetæ (præter *Saturni*, *Joviſq;* comites) quorum Orbes ſunt Circuli imaginarii, quibus lucida illorum corpora circumgyrantur (ut in priori Syſtemate deſcripſimus) primarios Planetas illos appellamus, quorum corpora ſimplicitèr circa *Solem* moventur, ſecundarios autem iſtos, qui circa Primarios vertuntur, unde fit ut præter proprium motum circa primarium Planetam, participent etiam motum primarii circa *Solem*: Hujuſmodi Planetæ duo obſervantur *Saturnum* comitari, qui Teleſcopii ope aliquando propiores, aliquando ab illo remotiores inveniuntur. Circa *Jovem* videntur quatuor hujus generis Stellæ, quæ circa illius corpus tanquam centrum proprium volvuntur, prima diſtare ab illo videtur circa ſex Terræ Semidiametros, ſecunda octo, tertia decem, quarta quaſi 20. Hi Planetæ ſecundarii (juxta ordinem cæterorum) cum ſunt ſupra *Saturnum* aut *Jovem*, ab Occidente verſus Orientem moventur. Cum verò ſub illis ſunt è contra moventur reſpectu Terræ ſitûs; atq; hoc pacto evenit ut aliquando interponant, interdum occultentur à Primariis Planetis circa quos volvuntur. Primus horum (qui eſt proximus ad centrum Stellæ *Jovis*) curſum circa *Jovem* adimplet uno die, horis 18. ſecundus tribus diebus, horis 13. tertius diebus ſeptem, horis quatuor. Quartus iſq; longiſſimè diſtans diebus 16. horis quinque.

Planetæ primarii quid?

Planetæ ſecundarii.

Duo Planetæ ſecundarii circa ♄ & quatuor circa ♃ obſervationi noſtræ occurrunt.

Quo tempore ſecundarii Planetæ Zodiaci Circulum circa primarios complent.

quinque. Pariter *Terra* ſuum habet Planetam, quem Lunam vocamus, quæ propter vicinitatem magna ſenſui apparet, quanquam veriſimile eſt, illam *Saturni* & *Jovis* comites mole non ſuperare. Quod verò ad *Martem*, *Venerem* & *Mercurium* ſpectat, haud ita pronum eſt obſervare, utrum hujus generis aliquos circa ſe habeant necne; Sed nunc haud diutiùs his Planetis ſecundariis immorabimur, præterquam *Lunâ*, quippe cum illorum motus nec benè noti ſint, & à paucis obſervantur, hic itaq; tantùm agemus de illis, quorum certior eſt cognitio, & nunc Orbibus Planetarum peragratis, ab ipſo centro ad immenſam illorum circumferentiam; proximè Peripateticorum ſententiam exagitabimus, & utrum dentur in Cœlis *Orbes Solidi* diſquiremus.

CAP. III.

Confutatio Peripateticorum circa Solidos Orbes.

OBtinuit inter antiquos opinio, quæ etiam adhuc quibuſdam arridet, Orbes, quibus moventur Planetæ, ſolidos eſſe; quam aſſertionem leviculis quibuſdam & inanibus argumentis ſuffulcire conantur, ſi enim (inquiunt) Orbes cœleſtes ſolidi non ſint, qui fit ut (quòd quotidiè videmus) Planetæ & Stellæ tàm exactè ſuos conſtantes & regulares motus obſervarent, nullâ admiſſâ varietate, cùm ſi tanquam volucres in äëre errarent, naturâ fieri non poſſit, quin ab inæqualitate declinarent? Reſponſionis loco ſciant iſti motum Planetarum eſſentialem eſſe, & à *DEO* (omnium opifice) ab initio illis impreſſum, (quo æternæ legis decreto) certos, & conſtantes in Cœlo motus obſervare coguntur, ut quotidiè experiri eſt; iſtam autem de ſolidis Stellarum Orbibus ſententiam omninò explodimus tanquam improbabilem, imò in rerum naturâ impoſſibilem, quod Nobilis ille *Tycho* (contra Orbium Cœleſtium ſoliditatem diſputans) trifariam probat. Primò à motu Cometarum; ſecundò à Stellarum radiis minimè refractis, & deniq; à ſitu Planetarum, & Orbium proportione; & certè ſi ſolidi ſupponantur Orbes, non poſſent Cometæ ab uno Orbe in alium tranſire propter Soliditatem, atqui contrarium deprehenditur, quod *Tycho* ſuo tempore diligentiſſimè obſervavit. Idem quotidiè confirmatur luce & apparentiâ Stellarum, cùm enim Terra ſita ſit extra centrum Orbium Planetarum, neceſſariò ſequitur ſi Orbes eſſent ſolidi, lucem ſuam obſcuriorem futuram, fulgenteſq; illorum radios magis refractos nobis apparituros, indeq; ſecuturam Refractionum multiplicitatem, radioſq; Stellarum ab uno Orbe in alium jactos tàm variè multiplicandos eſſe, ut ſubitò magna videretur in motibus Planetarum & Stellarum irregularitas, ipſiq; aſpicerentur in locis longè diſtantibus à veris ſuis in Cœlo locis, ita ut in unâ revolutione hujus Planetæ terreſtris, in quo verſamur, appareret mira quædam varietas in illorum motibus, & diſtantiis. Poſtremò nobilis *Tycho* accuratiſſimis Obſervationibus deprehendens Planetam *Martem* in Acronychiis ſuis poſituris propiorem eſſe *Terræ*, quàm *Solem*, aliàs autem ſupra illam longè moveri, perſuaſit ſibi hanc permutationem fieri nequaquam poſſe, ſi ſolidi eſſent Orbes, quoniam his ſuppoſitis, Orbis *Martis* penetraret & interſecaret Orbem *Solis*, atq; etiam ſi hæc *Tychonis* diſputandi ratio non ſemper teneat de Orbibus ſe invicem interſecantibus, juxta tamen genuinam Hypotheſin, & Syſtema Mundi, vera eſt in Planetis ſecundariis, ut in Lunâ Terram ambiente, quæ in uno circuitu bis interſecat Orbem terreſtrem. Idem de Comitibus ſeu Satellitibus *Jovis* & *Saturni* dici poteſt, qui Orbes illorum ambiunt & interſecant, ut *Luna* Terræ orbitam. Jam ſi hoc non ſufficiat ad probandam in Cœlis fluiditatem, tum aut concedenda eſt mutua ſolidorum Orbium penetratio, aut negandus Cœ-

lorum

lorum motus, quorum utrumq; ratio ipſa tanquam abſurdum & impoſſibile reſpuit & condemnat.

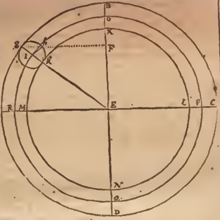
CAP. IV.

De projectione Ellipſe-s in quâ moventur Planetæ.

PROPOSITIO.

De modo deſcribendi Ellipſin.

Sint tres Circuli concentrici, B A D C, O R Q P, X M N L, cum Diametris ad angulos rectos ductis, ut B D, A C, &c. ita ut medii circumferentia ſit inter extremorum circumferentias, medio intervallo; ducantur horum Circulorum Semidiametri g E, i E, k E, in communi lineâ, ubi libuerit, ut in g E, tum inter utramq; circumferentiam extimam à centro in communi lineâ, & medii circumferentiâ ut i fiat Circulus minor g h k utrumq; extimum tangens. Fiat deniq; angulus ad Centrum minoris Circuli g i h in duplâ ratione ad angulum g E B, qui eſt ad centrum circulorum concentricorum, & ad eaſdem partes, numerando à g extremitate Semidiametri majoris Circuli; dico punctum h in circumferentiâ minoris Circuli eſſe in ἐλλείψει, cujus extremæ Diametri erunt B D major, M L minor, ſcilicet Diametri extremorum circulorum.



PRÆPARATIO.

Ducatur g h & producatur ad F; ducatur etiam h k, ut in adjuncto Diagrammate videndum eſt.

DEMONSTRATIO.

Angulus g i h eſt in ratione duplâ ad g k h per Eucl. 20 3. ergò g k h = g E B, ideoq; h k & F E parallelæ ſunt per Euclid. 28 1. quoniam igitùr g h k eſt rectus, quia in Semicirculo, Euclid. 31 3. erit & g F E rectus. Euclid. 29. 1. Et ut E g (hoc eſt B E) : k E (hoc eſt E M) :: g F : h F. 6. 2. & componendo.

Ergò,

Ergò, ut B E Quadr. E M Quadr. :: { g F Quadr. / h F Quadr. } { Quia Quadrata ſunt in triplicatâ ratione laterum. }
BFD Rectang. = g F Quadr. Euclid. 35. 3.

Ergò punctum h in Ellipſi, quod erat demonſtrandum.

Vide *Myderg.* Conic. Sect. Lib. 2. Prop. 38.

CAP. V.

Quomodo Motus Planetarum in Ellipſi perficiuntur.

ANtequam oſtendemus quomodò motus Planetarum per Trigonometriam ſolvi poſſunt ſecundum noſtram *Hypotheſin Copernicanam*, hæc Axiomata deponemus.

ia Planeta-
m Ellipticæ.

I. *Quòd omnia Planetarum corpora in Ellipſi circa S O L E M moventur, ita ut S O L uno Foco ejus poſitus eſt, & medius motus in altero, circa quem firmè æquabilitèr Planeta volvitur, æquales angulos in temporibus æqualibus deſcribens.*

II. *Quia medius Motus ſuper unum Ellipſeos focum perficitur & peragitur, motus ſuper alterum, in quo S O L locatur, neceſſariò inæqualem appareat.*

III. *Quòd Abſidum linea uniuſcujuſq; Planetæ, Orbem Planetæ in duos ſemicirculos adamuſſim diſſecat, Obſervationes manifeſtum faciunt, quantitate & celeritate æquales, & per centrum Solis exactè tranſeunt.*

IV. *Uniuſcujuſq; primarii Planetæ Orbita eſt ad Eclipticam inclinata, & eandem in locis oppoſitis per centrum Solis, & non in ullo alio extra eum puncto interſecat.*

emonſtratio
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um gene-
is.

Nunc ut hæc perfectè intelligantur, hoc Schema ſubjungemus, in quo Orbita Terræ, ſeu alterius Planetæ eſt Ellipſis P H R T, ubi ſit P Aphelium, R Perihelium, A Sol unus Ellipſeos focus, Nodoſq; communis ſingulorum Planetarum, X focus alter, ſuper quem motus medius quodammodo perficitur, B N D M Orbis alterius Planetæ, qui eſt ad Eclipticam O N E inclinatus, eamq; ſecat in punctis N & M, & tranſit per Solem in A, adeo ut M ſit Nodus Planetæ Boreus, N Auſtrinus, O B Limes maximæ Inclinationis Planetæ ad Boream, B E ad Auſtrum, R P Linea Abſidum, quæ tranſeuns per Solem in A, Ellipſin in duos Semicirculos, quantitate & celeritate æquales adamuſſim dividit.

era Plane-
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latur.

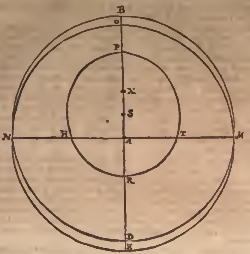
Præterquàm Planetæ in ſuo Orbe inæqualitas, quæ eſſentialis & realis eſt, nobis *T E R R A M* habitantibus alteram inæqualitatem apparet, quæ accidentalis & relativa nuncupatur, hæcq; ab annuo Terræ motu aſſurgit, quæ ſecundum Terræ poſitum augmentatur & minuitur reſpectu Solis & Planetæ.

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eriores
netæ ab
Inæquali-
liberan-

Quia verò tres ſuperiores Planetæ *Saturnus*, *Jupiter*, & *Mars* cum exactè Soli ſunt oppoſiti (quod eſt circa Retrogradationis medium) ab hâc ſecundâ inæqualitate liberantur, tùmq; à Terrâ in vero loco Eccentri tantùm intuentur, tanquam ex Sole aſpicerentur; ſequitur ergò ut accuratis Obſervationibus veram quantitatem Ellipticæ Inæqualitatis inveſtigamus, ad quod propoſitum Doctiſs. ille *Copernicus* Lib. 5. *De Revolutionibus Orbium Cæleſtium*, quomodo per tres Acronychias fulſiones efficiatur, demonſtravit; & hiſce noſtris temporibus defectum ejus ſupplere abundantèr *Bullialdus* elaboravit, quem bene reſtauravit, quamvis in ſuâ methodo aliquid ſit defectûs. Via verò per *C. S. Longomontanum* Lib. 2. Theoric. tradita, magis noſtræ imitationis meretur, qui ab accuratâ *Acronychiarum fulſionum* fidelitèr factarum collatione inopinatò inveſtigabat quò anteceſſores erraverunt, & quâ ratione locus *Aphelii* & *Eccentricitas* melius rectificentur, etſi verò via non tàm in ſeipſâ peculiaris eſt, attamen certior quàm illam per ullam regulam ſpecialem determinare,

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igetur.
gomon-
Methodus.

ſuppoſitione



ſuppoſitione 3. aut 4. locorum obſervatorum, ut *Longomontanus* agnoſcit *Lib.* 2. *Theoric. Cap.* 2. his verbis. "*Siquidem longè ſpecialior, & ideo quoq; "incertior eſt hac per trium locorum obſervatorum ſuppoſitionem, juxta veteres "πραγμάτια, & labyrintho atq; ambage quamplurima, ob æquantis inſinuatio- "nem, involuta.* Itaq; deſiſtens ad faciendum ullam faſtidioſam inquiſitionem per Triangulorum doctrinam ad inveniendum *Aphelii* locos & Eccentricitates Planetarum, hâc methodo uſus fui. Poſtquam per optimas Tabulas, quæ nunc in lucem efferuntur, locum Heliocentricum omnibus in partibus Planetarum orbitæ ſupputaveram, tùm per auxilium admirabilium *Tychonis* Obſervationum confeſtim ubi defectus erat cognovi, & quomodò amplior reſtauratio faceretur, quam commutando *Aphelii* locum, *medium motum*, & *Eccentricitatem* ubi opus erat, peregi; Quò complures Planetariorum Orbium dimenſiones tàm veritati reſtituuntur, quòd fermè nihil addi remanet, ut per ſequentem Motuum Theoriam evidentèr apparebit, perq; *Cæleſtium Obſervationum Synopſin*, qui huic operi connectetur.

Modus inveniendi Abſides & Eccentricitates Planetarum in Elipſi abſq; Triangulorum auxilio.

CAP. VI.

De Parallaxi Solis, Diſtantià, & Tranſlatione Apheliorum & Nodorum Planetarum, contra cujuſdam Neotericorum ſententiam.

PRiuſquam me accingo ad inveſtigandum veros Solis & reliquorum Planetarum motus, conabor hocce Capitulo (quantum res poſtulat) objectiones aliquot nuperrimè allatas contra probe-definitas de Parallaxi Solis & erraticarum Stellarum Obſervationes apud nos & pleroſq; hujus ſeculi Aſtronomos receptas, amoliri; paritèrq; ſententiam noſtram in medium proferre, videlicet *Aphelia* & *Nodos Planetarum* non ſemper ſub uno, eodemq; Cœli Stel-

lati puncto fixa cohiberi, ſed reverâ moveri partim tardiùs, partim celeriùs, veluti ex Obſervationibus liquidiſſimè compertum eſt.

…tatis con- …x appa- …à Veneris …le, Hori- …dem Solis …laxin non …dere mi- …quadran-

Primò igitùr dico, Obſervationem factam de *Venere* in *Sole*, exiſtente, *Anno* 1639. *Novemb.* 24. non ſufficere ad determinandum juſtam Parallaxem *VENERIS*, & conſequentèr *SOLIS* quantitatem, ſicut enim infrà oſten-dam, Refractiones Stellarum interdum mirificæ ac prodigioſæ obveniunt, cùm Horizonti propinquiores exiſtunt: Quemadmodum in iſtâ Conjunctione, *VENERE* depreſſâ Scrup. 6′. per ſuam à Sole Parallaxin, ac proindè ab illius centro Scrup. 19′. diſtante, admodùm veriſimile eſt, ejus Refractionis exceſſum ſupra Solem juxta Horizonta factum, tunc temporis exæquare potuiſſe, ſi non ſuperare ejus Parallaxin, ſicut quotidiè obſervatur in locis *Veneris* & *Mercurii*, quandocunq; juxta Horizontem de iis experimentum tentatur. Unde cenſeo perquàm incongruum eſſe, imò prorſus impoſſibile, ex unicâ iſtâ Obſervatione colligere maximam *Horizontalem Solis Parallaxin* non excedere Minuti quadrantem.

Et quamvis eruditus ille *Keplerus* diſcrepet aliquantulùm à reliquâ Aſtro-nomorum turbâ, quippè qui contrahat Horizontalem Solis Parallaxin uſque ad unum minutum, prout collexerit ex quibuſdam Obſervationibus de *Marte* in Acronychio ejus ſitu habitis; hoc tamen nimis impar, ac infirmum argu-mentum videtur ad determinandum tanti momenti negotium, quandoquidem maximum in hàc controverſiâ quæſitum paulò tantùm ſuperat unum minutum ad quod *Keplerus* Obſervationibus ſuis per Inſtrumenta factis, nunquam per-tingere potuit, in quam ſententiam credo omnes ſagaces Aſtronomos facilè conventuros.

…nes con- …arallaxin …Kepleria- …adductæ.

Pernobilis autem *Tycho Brabe* (qui propter accuratiſſimas ſuas Obſerva-tiones de veris Planetarum & Stellarum locis habitas, meritò omnium hujus ſeculi Aſtronomorum *PHÆNIX* eluet.) ſemper invenit Horizontalem Solis Parallaxin fuiſſe circitèr Scrup. 3′, quæ ſi reipſâ multò minor extiterat, id ipſum Ille facile deprehendere potuiſſet per perita iſta organica experi-menta quotidiè de meridianâ Solis Altitudine à ſe aut famulis ſuis habita. Ob quas igitùr rationes quiſquam ex hodiernis Aſtronomis (cui nullæ hactenus contigerunt æquè accuratæ Obſervationes ac Tychonicæ) nihilominùs con-ſtringeret eam uſq; ad unam duodecimam, nempe ad *Minuti quadrantem*, omnibus Aſtronomiæ peritis cis & ultra marinis judicandum relinquo.

Proculdubiò Solis à Terrâ diſtantiam per illius Parallaxin prope verum dignoſci potuiſſe, parvitate verò ejus perpenſâ ſeptentrionalibus hiſce plagis, ubi Refractionibus immunis eſt, methodum hanc admodùm difficilem ſenſi-mus, quod magis apparebit ex incertâ Solis parallaxi. Neq; ad amuſſim, do-ctrinâ Eclipſium demonſtrari potuiſſe, dubiis adeò involutam Obſervationi-bus; perplurima verò experimenta rimantes, necnon accuratè comparantes, diſtantiam illius intra 1300. & 1400. Semidiametros Terræ reperimus, quæ à noſtrâ limitatione paululum differt, utcunq; nihil ad eorum propoſitum ac-cumulat, qui Solis Parallaxin Horizontalem ad *minutum*, multò minùs ad *mi-nuti quadrantem* diminuerunt. Alii verò hæc minimè votis reſpondiſſe Inve-nientes accuratiùs per *Lunam* in *Dichotomiâ*, cum biſecta, & exactè dimidiata videtur, dignoſci autumant, cui propoſito regero, cum tempus illius verum nequè Teleſcopio, neq; nudo oculo ad amuſſim poſſet obſervari, hoc Problema omnimodò non valeat, niſi aliud medium ad opus peragendum coincidat, cu-jus rei gratiâ, meam proferam ſententiam, & ad lucidiorem rei enucleationem hæc interfixam *Axiomata*.

…olis di- …a.

I. *Quòd per virtutem Solis motûs ſuum circa Axem in centro Syſtematis Pla-netarii, tota materia cœleſtis ab Occaſu in Ortum, modo Vorticis circum-vebitur.*

II. *Vi & motu hujuſce materiæ cœleſtis, Terra, cæteriq; Planetæ circa Solem circumferuntur.*

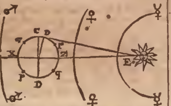
III. *Quanto*

III. *Quanto propiùs Centro, ac vi* ☉ *motrici eorum aliqui ſunt, tantò rapidiùs moventur, quia materia cæleſtis ibidem impulſa violentius eſt per illorum vim impulſivam, Solem.*

IV. *Dum Terra (ſicut alii Primarii Planetæ) circumrotatur circa vim motricem, Solem, Secundarius Planeta, Luna περίοδον ſuam circa Terram peragit; & ratione Telluris rapidi motûs circum Axem ſuum, qui circumjacit Materiam Cæli intra Orbem, Vortex quaſi in fluviis, ſequitur, Lunam ratione vicinitatis ad Terram, Revolutionem ſuam paucis diebus peregiſſe.*

V. *Cum Luna Planeta ſit ſecundarius, & Revolutionem ſuam circa Terram peragens, fit ut motus ejus (vi iſtius Materiæ Cæleſtis (per vim primarii Vorticis mota) nunc intenditur, & nunc remittatur.*

Veluti in Figurâ, Luna movens à C ad X per motum Ætheris impellitur, & prona vehitur, magis verò in a, quàm in p, ut adſtipulatur *Des Cartes*, quia pars craſſioris ætheris interjacet (aliquo reſiſtente impulſui alterius Materiæ Cæleſtis, & poſteà movente ☽ à D per q verſus r) celeritatem motûs retardat, & ab hâc materiâ Cœli reſiſtitur, ſed plus apud r, quam ad a, quaſi magis cœleſti huic materiæ reſiſtenti oppoſita, ita fit ut Luna in a & P æqualitèr impulſa, veluti in q & r reſiſtitur, Punctis, quibus hæc Æqualitas referetur, *Soli* obverti & opponi debuerit, videlicet in X & Z.



Itidem in eodem Diagrammate, repræſentet A Terram; E Solem in, aut prope Horizontem, X locum *Lunæ* in ☍ ☉, Z locum ejus in ☌ ☉, & C locum ejus cum in Quadraturâ ſit. Porrò ſit D locus Lunæ in *Dichotomiâ*, & C A D angulus Evectionis, æqualis tùnc temporis diſtantiæ ejus à Quadraturâ, quæ juxta *Tychonem* eſt gr. 2 30′.

Jam verò primarii Planetæ, cum aut in ☌ aut ☍ ☉, omnimodo ab aliquâ aliâ inæqualitate liberantur, quàm ab eâ, quæ naturalitèr ex Ellipſibus promanat, omninò ita hic ſit in Lunâ, quæ in ☌ aut ☍ ☉, ſecundæ inæqualitati eximitur. Et quamvis ab eâdem non pendet cauſâ, ſed ab angulo illius Evectionis, nihilominùs iſta inæqualitas (veluti Primariis Planetis) major eſt in, aut prope Quadraturam ad Solem, & nihil cum in Conjunctione aut Oppoſitione eſt, quapropter veriſimile videtur angulum ad Solem ab Orbitâ Lunæ ſubtenſum angulo Evectionis æqualem eſſe, ut optimè monet Longomont. Lib. 1. Cap. 6. Theoric. qui juxta accuratiores *Tychonis* aliorumq; Obſervationes eſt gr. 2 30′, quod medium adæquatum eſt inter maximam Evectionem gr. 2 41′, & minimam gr. 2 19′, quæ poſtrema Tabulis noſtris aſſecuti ſumus, & idcircò prope numeros Doctiſſimi *Bullialdi* devenimus, etiamſi minori erroris ſuſpicione, angulum illum Evectionis accipiemus eſſe gr. 2 30′, velut aſſerit *Longomontanus*, quo æquali mediæ diſtantiæ ☽ in *Dichotomiâ* à puncto *Quadraturæ*, ut *Teleſcopii* obſervationes teſtantur, idcircò donec limatiores hujuſce rei ad determinandum inveniri poſſint Obſervationes, hiſce præmiſſis aſtipulari nequaquàm abſurdum eſſe autumamus. Et quamvis *Ariſtarchus* & *Reinboldus* hunc volunt eſſe angulum nimis magnum, nempè gr. 3 0′, cui *Athanaſius Kircherus* in *Arte magnâ Lucis & Umbræ*, eundem calculum addit, nihilominùs eruditus *Ricciolus* (ſine ratione ſuffixâ) ad gr. 0 30′. diminuit, & *Wendelinus* ad gr. 0 14′ 30″. cum verò hæ nudæ ſunt opiniones, & neutiquàm obſervationibus & principiis Aſtronomicis fundatæ, ut compertum nobis in 40. Eclipſibus eſt, Tabulis noſtris *Bullialdum* preſſo, quod aiunt, pede ſubſecuti ſumus, qui à doctrinâ Eclipſium

Solis diſtantiam 1460. Semidiametros facit, angulo Lunæ minoris Evectionis gr. 2 19′. adæquantem, qui apprimè reſpondet *Kepleri* ſuppoſitioni in *Ephemeride* anni 1618. ubi ait *Lunam apparere dimidiatam ſeu biſalcatam quatuor ferè horis ante primum, vel poſt ſecundum aſpectum quadratum*, quæ in motu pro eodem angulo faciunt gr. 2. Utcunq; ſingulos ſingulis ſuis ſententiis remittimus, & ad demonſtrandum Solis à Terrâ diſtantiam devenimus.

Priori igitur Schemate ad Triangulum A D E recurrimus, ubi dantur (1.) A D media diſtantia Lunæ à Terrâ 59. Semid. (2.) angulus D A E gr. 87. 30′. (3.) A D E gr. 90. Hinc datur A E Solis diſtantia à Terrâ 1353. Semid. Terreſt Si verò accipimus angulum Evectionis C A D gr. 2 19′, & quod omninò ſequitur angulum D A E gr. 87 41′, diſtantiam ejus A E 1460. Semid. reperiemus, ut in Tabulis noſtris, & *Bullialdi* videri liceat.

Secundò quantum ad motus Apheliorum & Nodorum Planetarum, dico, quod ſi non moveantur, alia lentiùs, alia velociùs, ſed fixum aliquod perpetuò obſervent Sphæræ octavæ punctum, tunc Planetarum motus per omnia ſecula nunquam accuratè colligi poteſt, aut calculo ſupputari, ſicut perito Lectori licebit protinùs experiri ex obſervationibus eorundem locorum, quas cumulatim inveniat congeſtas in Synopſi noſtrâ Obſervationum, ubi ſpectare poſſit mirabilem iſtam Tabularum noſtrarum per omnia ſecula cum Cœlis harmoniam; quod nullo modo adeo accuratè perfici poſſet, ſi eorum *Aphelia* & *Nodi* ſub Octavâ Sphærâ fixa manſiſſent.

...us inveniuntur ſedibus ſuis priſtinis exceſſiſſe, tranſitu facto in fixarum conſequentiam, exem... Lunæ; ſed illis motibus omninò tardiſſimus, cum Lunæ Apogæum progrediatur valdè ſenſi... ...pler. *Epit. Aſtron.* Pag. 595.

Præterea etiam, ſi modò Stellæ octavi Orbis non moveantur, quæſo vos quomodò primarii Planetæ (qui ſinguli in ſuis Orbitis, ſeu Vorticibus convertuntur) imperia ab illis, legemq; ſuorum motuum recipiunt, non à Sole, qui centrum iſtorum vorticum exiſtit, & cui motum ſuum acceptum referre debeant? Quandoquidem ipſa L U N A, inferior & ſecundarius Planeta, & circa Terram ut proprium ſibi centrum converſa, nullâ iſtiuſmodi lege ex illis pendet, ſed quotidiè locos ſui Apogæi & Nodorum permutat, quod perſpicuè conſtat ex rapido ejus motu & propinquitate ad Terram, ad quam totus ſibi motus ſolummodò refertur.

Quinetiam ſi improbabile non ſit, omnes Stellas fixas, ſuos ſibi ſigillatim habere Planetas, ac circumgyratos vortices more noſtri Solis, tùm neceſſariò ſequetur Planetas hoc noſtro Syſtemate locatos, (qui Lucem, Virtutem, præcipuamq; ſui motûs Vim, à Sole accipiant) nullo modo pendere ex alio quocunq; corpore infinitis ſpatiis ab eodem diſtante, nédum legem ullam aut imperium motûs haurire ab iſtiuſmodi corpore, quod centrum ſit alterius Syſtematis immenſo intervallo diſſiti, quod quidem naturalis ratio dictat eſſe abſurdum & impoſſibile.

...*ſmico* non ſemel affirmat, Stellas fixas eſſe totidem Soles, noſtro Soli conformes.

Poſtremò, quandoquidem Parallaxis Terreni Orbis neutiquam deprehendi poſſit in Stellis fixis (ut præcipuæ Obſervationes teſtantur) idcircò prorſu impoſſibile eſt, ut quiſquam exinde illarum à terrâ diſtantiam definiat, né ſum juſtam magnitudinem & quantitatem comperiat. Utcunq; ſi Receſſio Æquinoctiorum miſſa fiat, & illorum motus in Longitudinem tantùm comprobentur (quod vix credo) tunc fieri poteſt, ut fixarum diſtantia ex circuitionum temporibus aliquatenus dignoſcatur. Axioma enim Indubitatum eſt, Unumquemq; Vorticem Periodum ſuam abſolvere in Juſto, debitoq; temporis ſpatio amplitudini, ſive diametro eorum convenienti, juxta illud *Ariſtotelis* Lib. 2. de *Cœlo* Cap. 18. *Nihil magis eſſe conſentaneum rationi, quàm ut reſpondeant cujuſq; Planetæ tempora converſionis, ejuſdem altitudini, ſeu Orbis amplitudini.* Quod quidem veriſſimè compertum habeo in Planetis, quanquam dubitari

poteſt

poteſt de ſtellis Octavæ (ut aiunt) Sphæræ, quoniam illæ locis ſuis planè defixæ videntur, & (quatenus mihi cognoſcere datur) totidem centra reipſâ exſtant variorum Planetarum Syſtematum, quo etiam reſpectu *Sol noſter* in illarum *Catalogo* æſtimari poſſit, hæc autem aliorum judiciis relinquam, ſperans neminem præproperè de his ſententiam laturum, priuſquàm ad rectæ rationis Tribunal ſiſtit, quam ſolam æquum eſt moderatricem ac judicem in rebus hiſce Philoſophicis conſtituere.

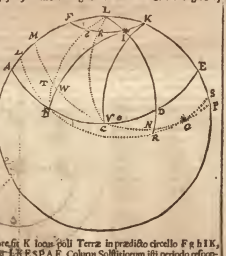
ipſius Solis incertâ Paralaxi & altitudine. *Ricciolus* Lib. 6. de ſtellis fixis fol. 414. Conſentit huic ſententiæ Nobilis ille *Tycho* Tom. 1 Progym. pag. 470. & Keplerus Epit Aſtron. Lib. 1. part. 2. Aſtipulatur & *Galilæus* Dialogo 3. de *Syſtemate Coſmico*, dicens, Neq; enim credo Stellas eſſe diſperſas in Sphærica ſuperficie, diſtante æqualitèr à centro, ſed exiſtimo diſtantias earum à nobis adeò varias eſſe, ut aliæ aliis, bis, terve remotiores eſſe queant, &c.

CAP. VII.

Theoria Nova partim ad Nicholai Copernici *mentem inſtituta, Æquinoctii Vernalis in antecedentiâ motum, paritèrq; mutabiles Fixarum Declinationes ad ſolvendum, in quâ Stellas fixas non loco moveri eſt Hypotheſis, ideoq; Phænomena iſta à retrogradâ Libratione Axis Terræ (lentiſſimo tamen motu) circa polos Zodiaci exoriri, Sententia eſt iſtius Philoſophi.*

Receſſionis Punctorum Æquinoctialium Demonſtratio.

IN appoſito Schemate ſit ABCDE Ecliptica, cujus Polare punctum ſit L, à quo circumſcribe Circellum F g h I K, cum Semidiametro æquali diſtantiæ *poli Ecliptica à polo Terra*, erunt igitùr Semidiametri LK & LI æquales gr. 23 31′ 30″. circuli magni. Sunt etiam Circuli F g h I K, & ABCDE paralleli; inq; hoc circello F g h I K, in antecedentia Signorum Axim Terræ librationem præſtare deponimus, lento tamen motu circitèr 50″. ſingulis annis, unde annus ſyderius eſt, 25680. annorum Periodus: his præpoſitis, revocemus proximè annum ante Chriſtum natum 370. nimirum 2038. annis præteritis abhinc, quo tempore ſit K locus poli Terræ in prædicto circello F g h I K, erat igitùr Circulus LKESPAF Colurus Solſtitiorum iſti periodo reſpondens; fuitq; KC arcus Coluri Æquinoctiorum, ſecantis illum Solſtitiorum



ad

ad rectos angulos in puncto polari K; etat quoq; punctum Eclipticæ E, punctum Solſtitii æſtivi, & C Æquinoctii verni, diſtantia quorum E C eſt ſemper Quadrantis arcus, ut probatur ex Sphæricâ ſolutione K C E, eratq; M T W C N O P Æquator, ſecans Eclipticam in puncto Vernalis Æquinoctii C, tali namq; obliquitate, quali Axis Terræ (Coluro Æquinoctiorum ſemper parallelus) à Polis Zodiaci declinat, hoc eſt gr. 23 31° 30″, & ſic habemus Thema Cœleſte illis temporibus congruum. Notandum verò eſt, quâcunq; Eclipticæ parte Terra poſita eſt, eandem Eclipticæ obliquitatem cum æquatore ſuo ſervat. Ratio tamen cur Sol, quando Terra eſt in Æqoinoctiorum Coluro, æquatori Terræ perpendicularis eſt, infra in hoc Capitulo docebitur. Supputemus denuò ad hunc annum incarnationis D. Chriſti 1668. punctum Cœleſte ſpectatum ab Axi Terræ in Circello F g h I K, ſecundum igitùr prædictum calculum; annis ſcil. 2038. exorietur arcus gr. 28 33′ 4″. librationis Axis Terræ in antecedentia à prædicto polari puncto K, hos igitùr gradus retrorsùm numero in circello F g h i K à K uſq; ad I, eſt igitùr angulus I L K ejuſdem quantitatis cum arcu E D in Eclipticâ. Et quoniam ſit L I D N R arcus Coluri Solſtitiorum, & I W B Æquinoctiorum, punctum itaq; noſtri Solſtitii eſt D, Vernalis Æquinoctii B, diſtantia quorum eſt gr. 90. ut ante, ſequitur igitùr (1.) qualem iſtum angulum I L K in antecedentia parvi circuli F g h i K, talem eſſe arcum E D, nimirum gr. 28 33′ 4″. in antecedentia Eclipticæ, quia latera L D & L E ſunt quadrantalia. (2.) Qualem eſſe arcum Solſtitiorum E D, talem eſſe arcum C B, Æquinoctiorum Receſſum. (3.) Ergò ſcil. temporibus ante Chriſtum 370. punctum vernalis Æquinoctii C fuit in primo Arietis puncto, ut teſtantur Obſervationes, ſubtrahendo abhinc arcum B C, exorietur punctum noſtri vernalis Æquinoctii gr. 1 26′ 56″ ♓, ſcil. gr. 28 33′ 4″. in antecedentia. (4.) Noviſſimè ſequitur Stellas videlicet, M T W C N P olim in Eclipticâ poſitas, jam jam Septentrionalis, & Stellam P Auſtralis eſſe Declinationis, & Stellam O iterùm eſſe in æquatore. Latitudines autem earum ſemper retinent eandem quantitatem, ut ex Schemate probetur.

Aliam Demonſtrationem nunc addemus, ubi poſitâ in Æquinoctiali Coluro Terrâ; Solem æquatori Terræ perpendicularem eſſe.

In Diagrammate ſit punctum S Sol, c c c C C Orbis Terræ, ♈ ♎ ♋, ♑, Ecliptica, ſint figuræ, 1. 2. 3. globi Terræ variè poſiti in Orbe. Sintq; s. 2. 3. Circuli ſecantes ſuperficiem Terræ in plano Eclipticæ, ſeu viæ Solis; in omniquâq; figurâ ſupponenda ſunt (1.) centrum C parallelum Eclipticæ axi, cum quo in Cœlis κατ' φύσιν conjungitur ob immenſam fixarum diſtantiam. (2.) punctum B repræſentans boreum Polum Terræ ad eandem Cœli partem ſemper dirigi ob magneticam Terræ virtutem. Sitq; a b d Æquator terræ in qualicunq; ſui Orbis parte poſitæ, ſecans Eclipticam cum eâdem Obliquitate, nempè aug. gr. 23 31′ 30″, ab his videre eſt, Terram poſitam in fig. s. in Solſtitio Brumali fore, ubi Sol perpendicularis eſt parallelo Terræ in O, maximæ ſcil. Declinationis ab Æquatore Terræ. Cum verò Terra remota eſt abhinc gr. 90: ut in fig. 3. uſq; ad Colurum ſuum Æquinoctiorum, Sol ibi eſt perpendicularis parallelo O, qui cadit in ipſo Æquatore, quod erat probandum.



CAP.

CAP. VIII.

De Theoriâ Terræ, ejuſq; motu annuo.

QUod hoc loco dicturus ſum fortaſſe nihilo melius quàm fabula videatur, ni ſenſus & demonſtratio idem verum eſſe dilucidè evinceret, ſed tam apparens, certumq; eſt Solem viſibilis Mundi communem eſſe Nodum & Centrum, ut qui huic doctrinæ (nunc univerſalitèr receptæ) maximi ſunt adverſarii, non poſſint ullâ reali Demonſtratione contradicere. Cumq; veteres Terram in infimo Planetarum Syſtematis centro collocarint, nihil aliud erat, quàm ficta Suppoſitio, quod iis qui in Theoriis Planetarum verſati ſunt optimè apparebit, qui (mihi nil dubium eſt) quin Hypotheſin illam, quæ omnia Cœleſtium Phænomenon genera evidente demonſtratione ſalvat, longè meliorem, genuinam, & realem eſſe comperiant, quàm vel illas *Ptolemai*, vel *Tychonis*, quibus Cœli imaginariis circulis, & tali quidem motuum perplexitate implentur, quæ nullo modo ſimplicitati motûs à *Creatore* ordinatæ quadrat; ut igitùr Lectores ab hiſce veterum Aſtronomorum abſurditatibus liberem, illos in rectum callem ad perfectionem ſpectantem nunc introducam, atq; ideo in hoc capite & ſequentibus Geometricè demonſtrabo, non tantùm quòd, Terra annuum habet motum, ſed quòd motus ille nullo alio loco quàm inter Orbes *Martis* & *Veneris* perficitur, quæ præcipua eſt cauſa cur Planetæ (Terræ loci reſpectu) tam aſſiduè in motibus, viſibilibuſq; magnitudinibus variantes appareant, nobis aliquando propiores, deinde remotiores apparentes, jam in motibus directæ, mox (in ſpectantium admirationem) retrò curſum flectentes, quæ omnes inæqualitates non realitèr Planetarum motui inhærent, ſed tantùm ex annuo Terræ motu; cui motus Planetarum apparentes, in ſingulis ſuis circulis referuntur, exurgunt.

DE TERRA, ejuſq; motu.

Hypotheſis *Copernici* genuina.

Hypotheſes *Ptolemai* & *Tychonis* abſurdæ ſunt.

1. Jam verò cum *Ptolemeus* primùm à Sole ut omnium aliorum Planetarum moderatore exorditur, ergò etſi nullum orbicularem motum admittam, ejus tamen locum quaſi punctum affixum centris omnium ſuarum Orbitarum conterminum ſervans, retinens; cujus auxillo verus Terræ, aliorum Planetarum motus multa doxteritate & demonſtratione obimeri poteſt, non multum digrediar.

Hinc evidens cauſa redditur, cur Solis ſimplex motus, omnium quinq; Planetarum motibus peculiari ac certo tenore neceſſariò commiſceatur, ita ut ad Solis normam omnes apparentiæ cœleſtes ſeſe dirigant, atq; totam chori Planetarum harmoniam tanquam Apollo in medio Muſarum moderetur. *Tycho* in Tomo. 2. Pag. 188.

2. Cumq; Terra, omneſq; alii primarii Planetæ aſſiduè Solem ab occaſu in Ortum circumferuntur, manifeſtè oſtendit Solem hujus viſibilis Mundi indubitatum eſſe centrum, ad quem primariorum Planetarum motus præcipuè ſpectant, ad exactam Planetarum motuum inveſtigationem quatenus ad Terram referuntur, & quoad nos apparent, perveniri non poſſit, ideoq; hîc initium à Terræ (vel Solis ſi magis placet) Theoriâ ſumam, omneſq; tales *lineas*, *Arcus*, *Angulos*, *Orbitas*, & *Puncta*, quæ ut ſciantur, neceſſe eſt & requiruntur ad ejus motum calculandum, deſcribam. Deinde Trigonometriæ doctrinâ, vobis brevem Calculi Synopſin tradam.

Primarii Planetæ circumferuntur Solem ab occaſu in ortum.

3. In hoc Diagrammate, A denotat locum Solis, & centrum Mundi, qui unus eſt Focus Ellipſeos, X alterum Focum Ellipſis, cui medius motus vulgò refertur, D centrum Ellipſeos Telluris, & circuli I G L K, cujus Semidiameter D I, vel D G continet 100000. partes, cujus circumferentiâ, locantur quatuor Epicycli, primus in I, ſecundus in K, tertius in L, quartus in G, qui ibi deſcribuntur non ut Terræ motum in eorum perimetro oſtendam, ſicut prudens antiquitas cum alia auxilia deeſſent, affinxit, ſed ut Ellipſin deſcribam, & in eâ verum Terræ locum inveniam.

Planetæ iter eſt per lineam Ooidem, ſeu Ellipticam.

4. Ellipſis



4. Ellipſis literis P B Q R notata, Terræ Orbem repræſentat, cujus Tranſverſa Diametrus, vel Axis Ellipſeos literis P D Q notatur, & Conjugata Diametrus literis B D R. Porrò verus Terræ motus in hâc Ellipſi (à præcedente figurâ) auxilio parvi Epicycli obtinenda eſt, cujus centrum in circumferentiá punctati circuli ferri exiſtimatur, & motus hujus Epicycli duplicem habet proportionem ad æquatum Terræ motum, etſi ad partem contrariam; adeo ut cum Terra eſt in Aphelio in ſuperiore parte Epicycli, collocetur ad P, cum autem in B gr. 90. ab Aphelio diſtat, tùm in infimá ejus parte eſt, hoc eſt gr. 180. ab Aphelio Epicycli, quia (ut ſupra dictum eſt) motus Epicycli ad motum Orbitæ duplicem habet proportionem.

5. A D eſt vera Terræ Eccentricitas, vel diſtantia centri Orbitæ Telluris à Sole, quæ æquat D X alteram partem biſectæ Eccentricitatis, quæ continet 1788. partes. Et hîc notandum eſt, D commune eſſe centrum Orbis, & duo puncta X & A vocari Focos, vel puncta Ellipſeos umbilicaria, quorum remotione à D, προσθαφαίρεσις Terræ colligitur, ut ſuo loco demonſtrabitur.

6. *Aphelium Terræ* eſt illud Orbitæ punctum, quod à Sole longiſſimè removetur, à quo loco diſtantia Terræ, ut ejus motûs inæqualitas inveniatur, recenſetur.

7. *Media Anomalia Terræ*, vel *Solis*, ut hic appellare poſſumus, eſt media diſtantia ejus ab Aphelio, cujus angulus æqualitatis refertur ad punctum X, qui *Focus* medii motus vocatur.

8. *Æquata autem Anomalia* eſt vera diſtantia Terræ, vel alterius Planetæ in Ellipſi ſuâ à puncto *Aphelii* ſui, reſpectu centri Orbitæ, quod in ſecundâ Telluris figurâ, Cap. 8. ex angulo P D N intelligendum eſt, cujus inveniendi modus in ſequenti exemplo manifeſtè docetur.

9. Cumq; hæc æquata Anomalia, ad veram Solis vel Terræ inæqualitatem determinandum non tantum inſignis & valdè neceſſaria ſit, ſed etiam ad exquiſitè veras inæqualitates aliorum Planetarum calculandas multum valet, primum idem manifeſtè demonſtrabo, ut (hoc perfectè intellecto) Exemplum verum Solis locum calculandi, obſcurum videri non poſſit. Et licèt Gallicus ille

ille doctus, inſignis, peritusq; *Iſmael Bullialdus* in *Aſtronomiâ ſuâ Philolaicâ*, ex maximâ Radii æquatione, omnium intermediorum Anomaliæ graduum Æquationem, ſecundum rectorum Quadrantis Sinuum proportionem, deducit, accuratæ tamen *Tychonis*, aliorumq; Obſervationes hanc, *Phænomena* non ad amuſſim repræſentare, ſicut motus Martis in ſuâ *Acronichia-Phaſi* declarat, dilucidè manifeſtant. Cumq; ex multis hujus generis obſervationibus exquiſitis inveſtigaverim, maximam æquatæ Anomaliæ à vero tum fieri variationem, quando Planeta ab Aphelio & Perihelio circiter 45. *gradus* elongatur; ut igitùr motuum Theoriam faciam Cœlis conſentaneam, hoc *Diagramma* inſerui, in cujus circumferentiâ Circulus variationis deſcribitur, in quo ejus Anomalia (quæ duplo Anomaliæ æquatæ Orbis æqualis eſt) recenſetur à C, ſecundum Signorum ſucceſſionem, ex cujus motione percipiemus quod, cum Planeta vel *Diacentralis eſt*, vel in *Augis Eccentri* lineâ, tum ab hâc inæqualitate immunis eſt; cum autem ab his punctis diſcedit hæc variatio creſcit, & maxima ſit, cum ejus Anomalia eſt 90. gradus, duplum æquatæ Orbis Anomaliæ exæquans 45. gradui, adeo ut (ſine ullâ explanatione) ex parvi circuli motu æquatæ Anomaliæ variationem, in primo prioris Semicirculi Orbis Quadrante, ad æquatam Anomaliam addendam eſſe percipiatis; ſed in ſecundo Quadrante ſubtrahendam. Sic in ſecundi Semicirculi primo à Perihelio Quadrante, addenda, in ſecundo ſubtrahenda eſt. Sed in Epicycli æquatione contrarium obſervandum eſt, quia ejus motus eſt versùs partem contrariam, ut ſuo loco pleniùs declarabitur.

Bullialdi Methodus.

Maxima Anomaliæ æquatæ variatio.

Qualitas & natura Variationis.

Qualitas motûs Epicycli.



10. *Terrâ* in puncto *Aphelii* ſui exiſtente, nulla eſt æquatio, ſed mediæ & veræ motiones ambæ una eademq; ſunt.

Æquatio Terræ quando nulla.

11. Cum *Terra eſt Diacentralis* in lineâ F D P, Eccentrica *Æquatio* eſt *maxima*.

Æquatio Terræ quando maxima.

12. *Æquatio Terræ* ab Aphelio ſuo creſcit uſquedum ad punctum ubi maxima eſt, perveniat, & inde decreſcit uſquedum ad Augem, vel Aphelium perveniat.

Æquatio Terræ quomodo creſcit & decreſcit.

13. In priore ab *Aphelio* ſemicirculo, *abſoluta Æquatio* à medio motu ſubtrahit, ſed in poſteriore ſecundum ipſius proportionem adauget.

14. In priore igitùr Semicirculo, verus motus ſemper medio motu minor eſt, ſed in poſteriore major. Hic autem notandum eſt, quod differentia inter mediam Anomaliam & angulum ad *Solem*, abſoluta Eccentri Æquatio eſt.

Utrum verus motus ſit major aut minor vero.

15. Cum *Terra* eſt in *Aphelio*, à *Sole* longiſſimè diſtat, & proxima eſt illi quando eſt in Perihelio.

16. Sole in Signiferi vel octavæ Sphæræ centro exiſtente, ſequitur, quòd *linea Terræ dibellans* per *Solem* permeans Zodiacum in duos æquales Semicirculos, exactè dividit, adeo ut *major pars* Orbitæ Terræ uni Zodiaci ſemicirculo quàm alteri debeatur. Ut in priore Diagrammate; ubi percipiatis, quod maxima pars Orbis ſupra lineam T A M verſus O, major eſt eâ ſubter

Sol centrum Signiferi.

Solis mora in Signis Borealibus major quàm in Auſtralibus.

S eandem

eandem verſus Q, unde *Sol* diutius in unâ quàm in aliâ Cœli parte permanere videtur.

His ſic breviter præmiſſis, in Capite proximo ad inveſtigandum verum Terræ à Sole locum ex Doctrinâ Triangulorum procedemus.

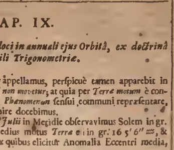
CAP. IX.

De inveſtigatione veri Solis loci in annuali ejus Orbitâ, ex doctrinâ admirabili Trigonometriæ.

QUamquam hic motum *Solis* appellamus, perſpicuè tamen apparebit in Cap. ſequentibus quòd *Sol non movetur*; at quia per *Terræ motum* è contrario, moveri ille videtur, itaq; *Phænomenon* ſenſui communi repræſentare, locum ejus verum breviter invenire docebimus.

Anno Chriſti 1650. die 28. *Julii* in Meridie obſervavimus Solem in gr. 14 49′. Leonis, quo tempore medius motus *Terræ* est in gr. 16 5′ 6″ ♒, & Aphelium in gr. 6 34′ 24″ ♑, ex quibus elicitur Anomalia Eccentri media, Sig. 1. gr. 9 30′ 42″.

Primùm deſcribatur Circulus P R Q his motibus conſentaneus, cujus Semidiameter DP erit 100000, ſitq; X *focus*, ſeu *umbilicus*, ad quem medii motus vulgò referentur, A *Focus alter*, in quo Sol locatur, P X H, Anomalia media gr. 39 30′ 42″. præinventa, ex quâ, quomodo Angulus ad *Solem* è datis inveniatur, novâ & accuratâ methodo demonſtrabimus.



Primùm in Triangulo Obliquangulo D X H cognita ſunt latera D H 100000. D X 1788. & Angulus DXH gr. 140. 29′ 18″, notus igitùr erit Angulus X H D gr. 0 39′ 6″. Jam ſi ab angulo P X H gr. 39 30′ 42″. auferatur Angulus X H D nuper inventus, manebit Angulus P D H gr. 38 51′ 36″, qui duplicatus dat Anomaliam variationis gr. 77 43′ 12″.

Porrò recurremus ad *Diagramma penultimum*, ubi in circumferentiâ circuli O Z Q P deſcribatur Circulus C S Z ſuper centrum α, in quo, à puncto C numeretur Anomalia variationis ad S gr. 77 43′ 12″. Tum dico,

Ut Radius α y gr. 90. ad Sinum maximæ variationis α y 1′ 26″, ita Sinus α N gr. 77. 43′ 12″, ad Sinum arcûs α N 1′ 24″, qui in hâc figurâ, æqualis eſt arcui H S, vel Angulo H D S. Si autem addatur hic angulus H D S angulo P D H gr. 38 51′ 36″, emergit P D S angulus gr. 38 53′ 0″. cujus duplum eſt motus Epicycli Z N gr. 77 46′ 0″.

In eodem Diagrammate ſit, ut prius X *focus medii motûs*, A Sol, D centrum Ellipſis, S centrum Epicycli, & N locus Terræ in ejus Perimetro; Primùm itaq; pro ejuſdem loci inveſtigatione, numeretur Anomalia Epicycli à Z in N gr. 77 46′ 0″. cujus complementum eſt angulus interior N S D gr. 102 14′ 0″.

In Triangulo D S N dantur latera D S 100000. S N 8, cum angulo ab iiſdem comprehenſo D S N gr. 102 14′ 0″, ergò innoteſcit angulus S N D

gr.

gr. 77 45′ 44″, & angulus Epicyclicæ Æquationis N D S 0′ 16″, cum latere D N 100002. Si autem ab angulo P D S præinvento gr. 38 53′ 0″, auferatur angulus N D S, 0′ 16″, relinquitur Anomalia Coæquata P D N gr. 38 52′ 44″, quâ è Semicirculo ablatâ; remanet angulus A D N gr. 141 7′ 16″.

Ruſùm in Triangulo D A N, quoniam jam data ſint latera D N 100002. D A 1788. cum angulo comprehenſo A D N gr. 141 7′ 16″. ergò dati ſunt reliqui anguli D N A gr. 0 38′ 3″, & D A N gr. 38 14′ 41″, qui eſt Angulus ad Solem, quo ablato ab Anomaliâ Mediâ gr. 39 30′ 42″, manebit Æquatio abſoluta gr. 1 16′ 1″. ſubtrahenda.

Æquatio Ellipſeos, ſeu Eccentri, eſt differentia inter Anomaliam mediam, & Angulum ad Solem.

Ad hæc in eodem Triangulo ex angulis D A N gr. 38 14′ 41″, A D N gr. 141 7′ 16″, & latere D N 100002. habetur latus A N 101400, quod eſt diſtantia Terræ à Sole.

	gr.	′	″.
Medius Motus Terræ	16	5	6 ♒.
Æquatio Subtr.	1	16	1.
Verus Motus Terræ ex Sole	14	49	5 ♒.
Oppoſito in loco erat *Sol* viſus, Viz.	14	49	5 ♌, omninò obſervationi conſentiens.

CAP. X.

De Æquatione Dierum Naturalium.

Quanquam per ſe pateat, neminemq; latere poſſit (qui curioſam artem Aſtronomicam vel mediocritèr intelligat) dies naturales inæquales eſſe, attamen iſtius inæqualitatis quantitas & proportio variè admodum à peritiſſimis omnium ætatum *Aſtronomis* definita eſt. *Æquationes Ptolemaicas* probâvere *Alphonſus*, *Copernicus*, *Lansbergius*, *Maginus*, author Tabularum Prutenicarum, *Reinholdus*; & pleriq; omnes uſq; ad tempora *Phœnicis* iſtius Aſtronomici *Tychonis Brahei*, cujus veſtigiis *Longomontanus*, *Argolus*, & *Eichſtadius* inſiterunt, admittentes inæqualitatem, quatenùs oritur à ſolâ differentiâ, ſive diſcrepantiâ Rectarum Aſcenſionum arcuum Eclipticæ & circuli Æquinoctialis. Enimverò hæc *Æquatio Tychonica* (quæ omnium exactiſſima obſervatur) nec ſuo, nec *Ptolemæi* Syſtemati conſentanea eſt; nam ſi Terra ſit centrum Mundi (ut hi aſſerunt) neceſſariò ſequitur Æquationem Dierum à duplici fonte manere, quorum unus ſcateat à differentiâ arcuum Eclipticæ & Æquatoris, alter ab inæquali *SOLIS* circa *Terram* motu, ſicut nobis quotidiè apparet. Hæc ſententia (quanquam hactenùs maximè æſtimata) à veritate abhorret, ſicut à *Tychonis* accuratis Eclipſium obſervationibus colligi poteſt, atq; aliis rationibus, quæ firmiſſimè evincunt *Ptolemæi Syſtema* abſurdum eſſe. Atq; tametſi *Tycho* ob hanc cauſam, poſteriorem ejus partem rejecerit, nullas tamen iſtius facti rationes reddidit, nec habent rationes *Longomontani Theoric. Lib.* 1. *Cap.* 2. quidquam in hâc re ponderis, quippè quæ rigori Demonſtrationum minimè reſpondeant, attamen ex verbis liquet illum plurimos ſui temporis doctos Mathematicos conſuluiſſe, & ab illis per literas admonitum, ut firmiores cauſas Æquationis temporum inveſtigaret, quàm quas *Tycho* reliquit in Appendice de motu lunari, id quidem tentabat, ſed incaſſùm. *Et certè meritò affirmare poſſum* (inquit fol. mihi 182. Theoric.) *me nunquam in toto meo Aſtronomico ſtudio majore quam hîc difficultate laboraſſe* Hinc videre eſt hoc illum magis torſiſſe, quam omnia ſtudia, nec mirum *Longomontanum* hic attonitum hæſiſſe, cum negando Telluris motu labyrinthum, ſive mæandrum ingreſſus eſt, ubi nihil quam vagari, & à viâ aberrare licuit, quùm de Cœlo quicquam demonſtrare vel ſecundum proprium, vel *Ptolemæi*

Æquatio temporis variè definita eſt.

Cur *Tycho* poſteriorem hujus Æquationis partem rejicit.

Cauſæ Æquationis Dierum apud *Longomontanum* dubiæ.

Syſtema prorſus incapax eſſet; unde Doctiſſimus *Bullialdus* (cum nullam Demonſtrationem *Tychonicæ* Æquationis inveniret) alteram inæqualitatem introduxit orientem ex æquato Solis loco, & Rectâ Aſcenſione verì loci, ſicut applicari poteſt Biſectæ Eccentricitati, quâ & ipſe aliquando uſus ſum, poſteà verò merum figmentum eſſe deprehendens, nullo experimento, aut argumento valido munitum, duplicem hujus Demonſtrationem feci (& in eorum gratiam, qui *Bullialdo* adhærent, & eorum qui veritatis Studioſi ſunt) aliam juxta *Bullialdum*, aliam ſecundùm *Syſtema Copernicanum*, quod omnium maximè obſervationi congruum, ſolidiſq; ἀποδείξεως fundamentis nititur, quam in omnibus calculis ſequar, alterâ illis relictâ, quibus arridet. Interim hoc addere liceat, *Keplerum* magnum illum Aſtronomorum *Antiſtiten* ſuas obtuliſſe rationes pro illâ, quâ utitur, Phyſicâ Æquatione, ut videre eſt in Epit. Aſtron. Pag. 282. 283. & 721. & in *Tabulis Rudolphinis* fol. 33 & ſeqq. ubi fusè de eâ egit; at hæret mihi aqua an ulli ſatisfecerit, quippe cum *Empeirica*, *Demonſtrativa*, & *Phyſica* Æquationes omni prorſus ratione careant, nec Obſervationi congruæ ſunt. Nulla Dierum Æquatio conſentit experientiæ (uti ipſe ingenuè fatetur) quod ſua etiam ipſius verba clariùs oſtendunt. *Veruntamen cum, quo plures ex eo tempore Eclipſes Solis & Lunæ examino, hoc magis rem dubiam deprehendam, quænam ex tribus æquandi temporis ratio ſequenda ſit, Aſtronomica veterum,* Tychonis Empirica, *an mea phyſica & cauſalis, cum nulla harum ſit, quæ non ab aliquibus Eclipſibus confirmetur, à cæteris redarguatur, fol* 34. *Tab. Rudolph.* Sed quoniam prolixè repetere nolim, quid hâc in re alii fecerint, ad demonſtrandum accingar, ac primum ſecundum *Bullialdum*, quem pleriq; omnes ſcriptores hodie ſequuntur.

Quoniam itaq; Theoriâ Terræ deprehèndimus, illam ferri inæqualem in ἀνωμαλίᾳ ſuâ quod fit propter realem ejus accelerationem & retardationem in eâ ortam ab Eccentricitate, à quâ motûs inæqualitate quædam etiam temporis inæqualitas efficitur, à Telluris in Axe propria turbinatione; cum enim motus annuus in ſuâ ἀνωμαλίᾳ velox eſt, & augetur, tum diurnus etiam citus eſt, & vice verſa, cujus hanc affert rationem. *Neque enim diverſa eſt ratio in his motibus Terræ, quam in aliis motibus. Si etenim in plano aliquo inclinato Sphæra deſcendat, & interea turbinet circa axem proprium, ſi celerius deſcendat, celerius etiam revolvetur. In deſcenſu enim velociori, fit velocior contactuum progreſſus, & proinde unius alicujus puncti ad contactum celerior reditus.* Hæc ſunt ipſiſſima *Bullialdi* verba in *Aſtron. Philolaic.* Lib. 2. inde in ſequentibus concludit cum Terra ſemper inæqualitèr revolvatur, ſupra Axem, neceſſariò futuram aliquam diverſitatem in reditu Meridiani loci ad Solem. Secunda cauſa ab ipſo alligata naſcitur ab Eccentricitate Terræ. Tertia à ſimplici inæqualitate Rectarum Aſcenſionum Æquatoris & Zodiaci, quæ à diſtantia Polorum & obliquâ ſectione Circulorum emergit. Jam ut hinc clarius intelligamus (ſecundum *Bullialdum*) unde Æquatio Dierum Naturalium, & mutua earum connexio & conjunctio inter ſe oriatur, hortatur nos ut revolvamus hæc ſequentia.

I. *Differentiam rectæ Aſcenſionis Æquinoctialis & Zodiaci, & medias, ſive æquas Revolutiones Terræ quotidiè ſupra Æquatorem diſtributas.*

II. *Differentiam Rectarum Aſcenſionum, prout Eccentricitate augentur, vel diminuantur.*

III. *Inæqualitatem Terræ Revolutionis, & quam differentiam in prioribus reddit.*

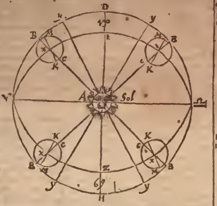
Unde colligi poſſunt duo conſequentia.

I. Differentiam inter medium locum Solis, & Rectam Aſcenſionem veri ejus loci eſſe in ἀνωμαλίας priori Semicirculo æqualem differentiæ Æquationis Naturalium Dierum & Æquationis Circuli; ideoq; additâ Circuli æquatione ad differentiam inter medium locum Solis, & rectam veri loci Aſcenſionem, oſtendis dierum quos quæris Æquationem. At in ſecundo ſemicirculo Æquatio

tio Circuli à differentiâ ſuâ ſubtrahenda eſt, & quod ſupereſt erit Æquatio Dierum, Vel,

II. Differentiam in verum locum Terræ in ſuâ ἀλλάγῃ, & R. A. veri à Sole loci eſſe Æquationem Naturalium Dierum, in gradibus & minutis Æquatoris.

Hucuſq; doctrinam à *Bullialdo* traditam ſecutus ſum, & eandem determinandi modum oſtendi; ſed quoniam neq: mihi, neq; aliis abundè ſatisfeciſſe noverim, modò aggrediendum eſt eam, quæ Obſervatione comperta eſt eſſe magis genuina & abſoluta, ſcilicet *Tychonicam* Æquationem quam Syſtemate *Copernicano* demonſtrare licebit, cum nec ipſe nec alius unquam ſive ſuo, ſive *Ptolemaicq* Syſtemate illud perficere poſſie negotium. Sed ad rem redeamus. Æquatio *Tychonica.*



Æqualitas motûs TERRÆ diurni (ut Obſervationes *Tychonica* rectiſſimè docent) vero Solis loco in Æquatore projecto ſemper referenda eſt, ita ut diſcrepantia veræ Longitudinis Solis & ejus Rectæ Aſcenſionis oſtendit Æquationem Dierum Naturalium. Æquatio temporis vera quæ?

Sit in Diagrammate appoſito A centrum Solis, X Terræ, ♈ X Longitudo Terræ à puncto Æquinoctiali in Ecliptica, cui æqualis eſt arcus ♈ y in Æquatore projectus, ♈ B Aſcenſio Terræ Recta, C B Meridianus apparentis diurnæ Revolutionis Telluris. Tum ducatur K M parallela ad A y, quæ repræſentabit Meridianum mediæ ſeu æquabilis diurnæ Revolutionis Terræ. Demonſtratio noſtra.

Hinc evincitur, quod angulus Librationis Terræ K X C = B A Y, differentiam longitudinis & rectæ Aſcenſionis commonſtrans, eſt vera Dierum Naturalium Æquatio, vel differentia inter tempus medium & apparens. Æquatio dierum naturalium ſemper æqualis eſt Terræ Librationi.

CAP. XI.

De Theoriâ Secundarii Planetæ, LUNÆ, & de variis in ejus motu Inæqualitatibus.

LUNAM ſecundarium eſſe Planetam ex generali Mundi Syſtemate clariùs apparet, eò quòd Terra Orbis ſui communis eſt Nodus & Centrum, circa quod Periodicam Revolutionem conficit. Et licèt Secundarius Planeta ſit, & minor quam ullâ Planetâ magnitudine, Mercurio excepto, cum tamen Terram quaſi comitatur, eiq; majorem lucem, quam ullus Planeta præbet, & menſes Anni deſcribit, ego igitur æquum eſſe puto ejus Theoriam proximè Terram, (vel Solem, ut vulgò exiſtimatur) collocare, ſicut omnes *veteres Aſtronomi* ante nos fuerunt. De Lunâ.

I. Porrò

1. Porrò ſicut *Terra* & alii *Planetæ* ſinguli in peculiaribus ſuis Orbitis circa *Solem*, ita & hic *Secundarius Planeta*, ſcil. Luna circa Terram movetur, reſpectu tamen ſui Syſtematis à Terrâ communi ejus Centro tranſlationis, in Lunæ motu duplex oritur inæqualitas, una Periodica, altera Synodica. Periodica Æquatio ad modum aliorum Planetarum obtinenda eſt, nam etſi in quantitate differt, eſt tamen ejuſdem qualitatis, ſicut mox demonſtrabimus; ſed Æquatio ejus Synodica ab ejus à Sole Elongatione dependet, & Evectione Syſtematis ſui à Terræ centro cauſatur. Hoc brevitèr præmiſſo, jam ad demonſtrandum omnes tales *Lineas*, *Circulos*, *Arcus*, *Orbitas*, & *Puncta*, quæ neceſſe eſt, ut ad ejus Motionem calculandam ſciantur, procedam.

2. *Aux*, vel *Apogæum* Lunæ eſt illud Orbitæ punctum, in quo, cum Luna locatur, longiſſimè à Terræ centro removetur, Diurno ejus motu exiſtente 6′ 41″. ſecundum ordinem Signorum; à quo puncto Anomalia Orbis recenſetur.

3. Lunæ Orbita eſt imaginaria Ellipſis (ſicut & illa Terræ) quæ Lunam ab occaſu in ortum, ſecundum Signorum ſucceſſionem circumfert, etſi cum aliquâ inæqualitate circa ejus centrum eſſe obſervetur; Converſiones enim Orbis ſui, centro æquante, regulares & æquales fiunt, quod eſt alter Focus Ellipſeωs, qui vulgò ipſum æqualitatis punctum exiſtimatur. Et quia hoc Centrum æquans, Terræ reſpectu, eſt punctum quod verſus *Apogæum* locatur, manifeſtiſſimè oſtendit motum Lunæ in Orbitâ ſuâ (ſecundum Primariorum Planetarum curſum) tardiorem eſſe quando eſt ſupra *Diacentron*, vel in ſuperiore ſui Circuli parte, & citatiſſimum eſſe, quando eſt ſupra *Diacentron*, vel in ejus parte inferiore.

4. Super punctum D, (quod eſt Centrum Orbitæ, ſicut Figura exprimit) *imaginarius Circulus* deſcribitur, in cujus perimetro parvus Epicyclus, cujus *Motus duplus eſt ad æquatam Orbis Anomaliam*, locatur, & recenſetur ab I ejus Aphelio, verſus N, &c. adeo ut cum eſt in ſuæ Ellipſeωs Apogæo, vel Perigæo, ſemper ſit in I Auge Epicycli. Cum autem in K gr. 90. ab Apogæo ſuo diſtat, tum in Z gr. 180. ab I Auge dicti Epicycli diſtat, nam ut ſupra dictum eſt, motus parvi Circuli eſt duplus ad majoris Circuli motum.

5. *Medius motus Lunæ*, vel alterius *Planetæ* ſuper Focum Ellipſeωs conficitur, ſicut puncto X repræſentatur; cumq; verus motus ad alterum Ellipſeωs Focum à A refertur, quod punctum (in Primariorum Planetarum Syſtemate) Solem, Centrumq; Mundi repræſentat. Hîc autem in LUNA eſt Centrum Terræ, quod eſt Orbis ſui punctum Umbilicarium.



6. *Anomalia media* eſt Angulus ad Focum Ellipſis, qui mediæ Diſtantiæ LUNÆ à puncto Apogæi ſui quadrat, ſicut ex Angulo P X H in ſequenti figurâ oſtenditur.

7. *Anomalia Æquata* eſt Angulus ad Centrum Orbitæ, qui ex mediâ Lunæ à puncto Aphelii, diſtantiâ, exurgit; Ut Angulus P D H in adjuncto Diagrammate perſpicuè repræſentat.

8. *Æquatio Epicycli* eſt arcus inter locum *Lunæ* verum in Ellipſi, & Centrum Epicycli interceptus; & in figurâ proximè ſequente, Angulo N D H intelligenda eſt, adeo ut Angulus P D N Anomalia ſecundò Æquata vocetur.

9. *Ano-*

9. *Anomalia* autem *Coæquata* eſt Arcus *Ellipſis* inter lineam Abſidis & verum Planetæ in dictâ *Ellipſi locum* interceptus, quæ in ſecundâ Figurâ, Angulo P D N intelligitur.

Anomalia Coæquata.

10. *Angulus ad Terram* (vel in Primariis Planetis, Angulus ad Solem) eſt vera Planetæ in *Ellipſi* ſuâ à linea Abſidis Diſtantia, ſicut ad Solem, vel Focum Ellipſeos, cui verus motus refertur, videtur.

Angulus ad Terram.

11. *Luna* autem cum *ſecundarius Planeta* ſit, curſumq; ſuum circa terram agat, eamq; pro communi ſuo centro retinet, ſicut primarii Planetæ circa Solem qui centrum Mundi eſt; inde efficitur ut Luna, cum ſit, in lineâ Solis ſyzygiacâ, ſicut & primarii Planetæ in Eccentro ſuo, tantùm Inæqualitati ſubjecta ſit; cum autem à Sole removeatur, & extra dictam lineam ſit, totum ejus *Syſtema* à propriâ ſuâ ſede removetur & transfertur, ut poſtea demonſtrabitur; undè ſecundæ inæqualitati ſubjectam eſſe, neceſſe eſt.

Motus Secundarii Planetæ) primò & ex propriâ ſuâ naturâ circa terram alligatur.

Totum Syſtema Lunare à propriâ ſede transfertur.

12. Super punctum R in priori Figurâ imaginarius circulus deſcribitur prope centrum Orbitæ ipſius Lunæ, per quem digreſſio Lunæ à prioribus inæqualitatibus in quadraturas utrimq; determinatur, dum centrum orbitæ Lunæ in ambitu hujus circelli (cujus Diameter ϖ A lineæ Apogæi Lunæ P O, aut unitur, ut in *Luminarium Syzygiis*, aut παραλλήλως [illegible] eandem extenditur, ut alias perpetuò) ferri videtur, motu duplici Lunæ à Sole, eâ ſcilicet lege, ut in ☌ & ☍ verâ Lunæ cum vero loco Solis, centrum Orbitæ Lunæ ſit in ϖ, in Quadraturis verò in A.

Evectio Lunæ.

13. Deniq; *alteram inæqualitatem* habet *Luna*, ut à certiſſimis *Tychonis Brahei* obſervationibus clariùs evincitur, quæ aliquando ſe extendit ad 40′ 30″. de quâ ampliùs cum ad inveſtigationem motûs lunaris è geometricis rationibus pervenerimus, differemus.

Variatio.

Dimenſiones Orbitæ Lunaris.

Semidiameter circuli Eccentrici D P	4047.
Semidiameter Epicycli K I = B F	2.
Eccentricitas biſecta D A = X D	175.
Variatio Æquatæ Anomaliæ maxima 0° 0′ 0″.	
Semidiameter circelli Evectionis R A = R ϖ	87.
Semidiameter circelli Variationis ϖ E	48.

CAP. XII.

De veri loci Lunæ per Triangulorum ratiocinium inveſtigatione.

INter Neotericorum Obſervationes variis in locis Terrarum Orbis factas, inſignis eſt illa, quam *Longomontanus* adducit, *Lib.* 1. *Cap.* 6. *Theoric.* qui anno Chriſti 1608. die 12 *Februarii*, hor. 8 43′. *Haphniæ* in *Daniâ* obſervavit *illuſtrem Conjunctionem* ſuperioris Cornu *Lunæ* cum *Aldebaran*, quando *Luna* prope Quadraturam & maximam à lineâ Syzygiacâ digreſſionem extitit, undè non ſolùm *Proſthaphæreſis Eccentri*, ſed etiam *Evectio* optimè determinari poterit. Et quoniam hoc tempore verus *Solis* locus fuit in gr. 3 43′ 30″ ♓, erit Æquatio temporis 7′ 40″. addenda, ita ut tempus medium ibi erat horis à meridie 8 50′ 40″. LONDINI verò hor. 7 58′ 40″. Ad quod tempus congruunt hi motus.

Obſervatio *Longomontani* anno Chriſti 1608.

	Sig.	gr.	′	″.
Medius motus Longitudinis Lunæ	1	27	19	47.
Apogæum Lunæ	5	9	19	11.
Nodus Boreus	4	23	54	9.
Anomalia media	8	18	9	36.

Pro.

Pro Proſthaphæreſi Eccentri Lunæ inveniendâ.

Sit in Schemate appoſito, Anomalia Eccentri media P Q H gr. 258 9′ 36″. cujus Complementum eſt angulus P X H gr. 101 50′ 24″. Siiq; X *Focus medii* motus, A *Focus veri*, in quo *Terra*, & D centrum Orbitæ.

Primùm in Triangulo obliquangulo X D H dantur duo latera, D H Radius Orbis Lunæ 4047. D X ſemiſſis Eccentricitatis 175. cum angulo D X H gr. 78 9′ 36″. (quia eſt exceſſus Anomaliæ mediæ ſuper Semicirculum gr. 180.) innoteſcet igitùr, per triangulorum ratiocinium, angulus X H D gr. 2 25′ 32″, undè angulus alter X D H erit gr. 99 24′ 52″, ergò habetur hujus Complementum, Q D H gr. 80 35′ 8″, quo duplicato, habebis Anomaliam Epicycli B Z N gr. 161 10′ 16″, cui æqualis eſt angulus B H N, erit itaq; angulus interior D H N gr. 18 49′ 44″.

In Triangulo D H N è datis lateribus, D H 4047. H N 2. & angulo comprehenſo D H N gr. 18 49′ 44″. innoteſcit angulus H D N 0′ 33″ & H N D gr. 161 9′ 43″. unà cum latere D N 4045. Jam ſi angulus H D N auferatur ab angulo jamdudùm invento Q D H gr. 80 35′ 8″. manebit angulus Q D N gr. 80 34′ 35″.



Deinde in altero Triangulo A D N habentur latera D N 4045, D A 175, unà cum angulo ab iiſdem comprehenſo A D N gr. 80. 34′ 35″. datur itaq; angulus ad umbilicum D A N gr. 96 57′ 43″, & latus A N. Dein ſubtrahatur hic angulus D A N ab Anomaliæ mediæ Complemento, & remanet Æquatio Eccentri abſoluta gr. 4 52′ 41″. addenda.

	Sig.	gr.	′	″.
Medius motus Lunæ	1	27	19	47.
Proſthaphæreſis Add.		4	52	41.
Locus Lunæ in Ellipſi	2	2	12	28.

Si autem è loco Lunæ Elliptico verus locus Solis auferatur Sig. 11 gr. 3. 43′ 30″, remanet diſtancia Luminarium, Sig. 2 gr. 28 28′ 58″, cujus duplum eſt Sig. 5. gr. 26 57′ 56″.

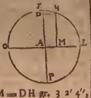
De Reflectione & Evectione Lunæ.

Prima harum Inæqualitatum à D. *Tychone* Variationem, à *Bullialdo*, Reflectionem appellatur, quando etenim proficiſcitur Luna à Syzygiis ad Quadraturam, linea Abſidum P C Q ex tranſlatione totius Syſtematis Lunaris evehitur extra locum naturalem. Et dum Umbilicus C deſcribit Semicirculum B C F, reflectitur Apogæum verſus V ſecundum ſeriem Signorum. Quando autem deſcribit alterum Semicirculum F O B, reflectitur Apogæum contra ordinem Signorum. Reflectente igitùr Lunæ Apogæo per Evectionem Centri Syſtematis lunaris C circa circulum B N C F O, Lunæ locus indies promovetur, aut retrahitur aliquantulum, ut rectiſſimè admonet vir clariſſimus & eruditiſſimus *Iſmael Bullialdus*.

Et quoniam ex Obſervationibus *Tychonicis*, maxima hujuſcemodi Reflectio deprehenditur eſſe in Octantibus, Scrup. 40′ 30″, quam etiam *Longomontanus* Lib. 1 Cap. 6. *Theoric.* & *Bullialdus* Lib, 3. Cap. 7. *Aſtron. Philolaic.* retinent,

retinent, idcircò in eâ, donec hujus rei veritas ab Obſervationibus & experientiâ longiùs detecta erit, acquieſcimus.

Quamvis determinetur hæc ſecunda Inæqualitas per Doctrinam *Trigonometriæ* in Lunari Hypotheſi, ad modum nihilominùs *Longomontani* commodè hic ſuper Circello demonſtratur, cujus Semidiameter A L vel A F maximam Reflectionem in ſeſe continet.

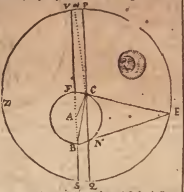


In noſtro Exemplo, quæratur Reflectio duplicatæ diſtantiæ ☽ à ☉ gr. 176 57′ 56″. competens itaq; in eodem circello numeretur eadem Anomalia à P per L in H, cujus Complementum erit arcus H F gr. 3 2′ 4″. Quare inſtituitur talis Analogia.

Ut Radius A L gr. 90 ad A L 40′ 30″, ita A M = D H gr. 3 2′ 4″, ad A M Reflectionem quæſitam ſcrup. 2′ 9″.

Schema Evectionis Lunæ propemodùm Tychonicæ conſentiens.

	gr.	′	″
Complement. Anom. æquat. a C B	96	57	43.
Reflectio P C a Subtr.		2	9.
Anomalia correcta ♈ *C E.*	96	55	34.
Complementum N C E	83	4	26.



Pro Evectione Lunæ inveniendâ.

Sit in hoc Diagrammate P Q E Orbis Lunæ, E locus Lunæ, C centrum Orbis lunaris, B locus Terræ, ex quo in circello B N C F numeretur duplicata diſtantia lunæ à Sole, à B per N in C gr. 176 57′ 56″, cui æqualis eſt Angulus C A B, hujus Complementum menſurat angulum F A C gr. 3 2′ 4″. Quoniam jam per 20. Prop. 3 Element. erit angulus F B C dimidium anguli F A C, videlicet, gr. 1 31. 2″, idcircò ſi angulus B C N = C B F adjiciatur angulo N C E, Compl. nimirum anguli ad Umbilicum N C E gr. 83 4′ 26″, prodit angulus E C B gr. 84 35′ 28″.

Primùm itaq; in Triangulo A C B æqualium crurium, dantur omnes anguli C A B gr. 176 57′ 56″, A C B = A B C gr. 1 31′ 2″, cum latere A B = A C Part. 87 50. innoteſcit igitùr B C 175. ferè.

Rurſùm in Triangulo E C B, quoniam habentur duo latera C E 4020. C B 175. cum angulo ab iis comprehenſo E C B gr. 84 35′ 28″, ergò habetur angulus Evectionis C E B gr. 2 29′ 31″, & diſtantia Lunæ à Terrâ B E 4006.

	gr.	′	″	
Reflectio	0	2	9.	Add.
Evectio	2	29	31.	Add.
Vera Æquatio Secundaria	2	31	40.	Add.

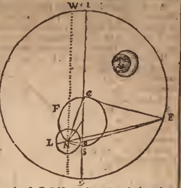
THEORIA noſtra LUNÆ Secundaria.

Circitèr annum 1649. quando de motu Lunæ primùm agimus (antequàm opera *Tychonis* & *Longomontani* viderimus) hæc ſubſequens Theoria, in mentem mihi, quæ hic recenſetur, advenit.

Theoria Lunæ altera à nobis olim inventa.

In hâc Figurâ ſit I W Q E Orbis Lunæ, cujus centrum D, I locus Apogæi, C Umbilicus, ſeu focus, in quo Terra, A centrum Circelli ſecundæ Inæqualitatis, N Centrum parvi Circelli Variationis, E locus Lunæ in Ellipſi.

Primùm in circello C F N C numeretur duplicata diſtantia Lunæ à Sole ab Umbilico C per F in N gr. 176 57′ 56″, cujus Complementum it Angulus S A N gr. 3 2′ 4″, Et quia angulus S C N dimidius eſt S A N, nempè gr. 1 31′ 2″, idcircò in Triangulo æqualium crurium C A N, dantur omnes anguli, A C N = A N C gr. 1 31′ 2″, & C A N gr. 176 57′ 56″, cum latere A N = A C 87 50, ergò datur latus C N 175. ferè. Si autem angulus S C N gr. 1 31′ 2″, addatur angulo ad Umbilicum S C E gr 83 2′ 17″, habetur angulus E C N gr. 84 33′ 19″.



In Triangulo itaq; obliquangulo ECN, è datis duobus Lateribus CE 4020, CN 175. cum angulo ab iiſdem comprehenſo E C N gr. 84 33′ 19″, invenitur Angulus C E N gr. 2 29′ 30″. & latus E N 4006. ut ante.

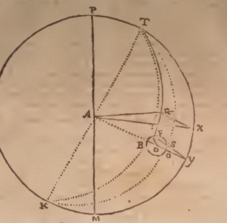
Deniq; in parvo Circello L S L numeretur denuò duplicata diſtantia ab L ad S gr. 176 57′ 56″, cujus Complementum erit Angulus E N O gr. 3 2′ 4″. cui æqualis eſt Angulus S A N. Itaq; in Triangulo E N O habentur Latera E N. 4006. N O 48. cum Angulo comprehenſo E N O gr. 3 2′ 4″. innoteſcit igitur Angulus N E O 2′ 12″,

Æquatio ☽ ſecundaria	C E N	gr. 2	29′ 30″.
Variatio	N E O		2 · 12.
Æquatio 2ª. adæquata		2	31 42.

Deniq; addatur hæc Æquatio gr. 2 31′ 42″. loco Lunæ Eccentrico, ſig. 2. gr. 2 12′ 28″, & emerget Longitudo Lunæ quæſita in gr. 4 44′ 10″. ♊.

De Latitudine Lunæ, ejuſq; Calculo.

Veteres Aſtronomi (quibus aſſenſit *Copernicus*) latitudinem Lunæ ſolùm dependentiam ſuper ipſius Nodos habuiſſe, opinati ſunt, necnon ſemper ejuſdem magnitudinis & quantitatis in locis æqualitèr ab eadem diſtantibus fuiſſe tàm in Conjunctionibus quàm Oppoſitionibus, & Quadratis cum Sole Aſpectibus; invenimus autem per accuratas *Tychonis* & cæterorum poſt ſe Obſervationes, maximam Latitudinem in illius Quadraturis plus eſſe per Scrup. 17′. quàm in illius Conjunctione ſive Oppoſitione cum Sole, ubi nunquam excedit grad. 5 0′ quod fortaſſè emotione Syſtematis Lunæ cauſatum foret. Hæc verò omittimus, & illius Latitudinem per Doctrinam Triangulorum juxta Theoriam *Tychonianam* ejus motionis ſupputare demonſtrabimus, quem ad finem hoc præmitto Diagramma, in quo T P K Y Orbem Lunæ repræſentat, K P T, Planum Eclipticæ in Quadraturis, K S T in Syzygiis, T Nodum boreum, K Nodum auſtrinum, Y O maximam Lunæ Latitudinem in Conjunctionibus & Oppoſitionibus gr. 5 0. y p maximam Latitudinem in Quadraturis gr. 5 17′. His præcognitis, quæratur vera Lunæ Latitudo



titudo tempore prædictæ Obſervationis *Longomontani*, in quo verus Lunæ motus eſt Sig. 2 gr. 4 44′ 8″. Nodus ejus Boreus Sig. 4 gr. 23 49′ 15″, qui ablatus ex loco Lunæ vero, relinquit Argumentum latitudinis Sig. 9 gr. 10 54′ 53″.

In Diagrammate adjuncto, maxima Latitudo Lunæ in Conjunctione ſive Oppoſitione cum Sole per angulum O T Y intelligitur gr. 5 0′. Maxima verò in Quadraturis Latitudo per Angulum P T Y oſtenditur gr. 5 17′. Differentia eſt ſcrup. 17′. ſemiſſis differentiæ D O 8′ 30″, cum quo intervallo ſuper centro D deſcribatur Circellus, literis O S F P notatus, in quo numeretur Duplicata Diſtantia Lunæ à Sole ab O per S in F gr. 176 57′ 56″. Tum in Triangulo Y D F dantur (1.) D Y inclinatio Orbitæ ☽ media gr. 5 8′ 30″. (2.) D F differentia maximæ & minimæ inclinationis 8′ 30″, cum angulo comprehenſo F D Y gr. 176 57′ 56″. ergò datur Angulus D Y F 4′ 54″, qui eſt Æquatio Nodorum, & Y F Latitudo ☽ maxima gr. 5 16′ 59″.

Quomodo vera Lunæ Latitudo per ratiocinium Triangulorum inveniatur.

In Triangulo Sphærico T X R ad R Rectangulo, datur T X gr. 79 5′ 7″, cum angulo X T R gr. 5 16′ 59″, ergò habetur X R, vel angulus R T X gr. 5 11′ 14″, qui menſurat latitudinem Lunæ ab Eclipticâ, tempore Obſervationis *Longomontani*.

Reductio nihil aliud eſt, quam differentia inter locum Lunæ in Orbe ſuo & Eclipticâ, & ſic inveniatur. In Triangulo T X R, ex datis T X gr. 79 5′ 7″, R T X gr. 5 16′ 59″, datur T R gr. 79 2′ 24″. Differentia 2′ 43″, eſt Reductio quæſita, quæ addita loco Lunæ præinvento, oſtendit locum Lunæ ad Eclipticam reductum in gr. 4 46′ 53″, ♊.

Reductio quid?

CAP. XIII.

Nova & vera trium ſuperiorum Planetarum, Saturni, Jovis & Martis, Theoria, in Longitudinem & Latitudinem.

1 EX Mundi Syſtemate, Orbium Planetarum ordinem, ſitumq; & diſtantiam à ſe invicem diſcernamus; undè Solem non eſſe Planetam, ſemper

De ſuperioribus Planetis ♄ ♃ ♂.

autem viſibilis Mundi centrum, locum ſuum, circa quod omnes primarii Planetæ moventur, retinere, obſervemus. Et loco Solis (quem vulgus & indocti inter Orbes *Martis* & *Veneris* collocârunt) *Terram invenimus*, qui (nil dubium eſt) quin ejus verus locus ſit, adeo ut ex communi ſenſu in quantum Solem moveri putamus, tantum è contrario Terra moveatur. Cum igitùr ex Planetis alli ſupra, alii intra Terræ orbem verſus centrum collocentur, eos ſuperiores Planetas qui ſupra, eos autem inferiores, qui infra, vel intra Terræ Orbem ſunt, appellamus; atq; ex priore numero, *Saturnum*, *Jovem*, & *Martem* invenimus, qui ſupra vel extra magni Terræ Orbis perimetrum collocantur; cum igitùr verum Solis à Terrâ locum invenire docuerimus, jam & veros horum trium Planetarum à Terrâ locos calculare demonſtrabimus.

n Orbe Ecliptico, tantundem Sol in eodem Orbe ex adverſo moveri videatur. Planetæ ſuperi-
feriores qui?

2. Nos certè & infallibilitèr docent Obſervationes hos tres Planetas, in ſuorum motuum qualitate, inter ſe ſimillimos & maximè uniformes eſſe, & quantitate tantùm atq; proportione à ſe invicem differre, quapropter una Figura, ad generalem ſuorum motuum Demonſtrationem, ſufficiet.

um qualitate inter ſe ſimillimos & maximè uniformes eſſe.

3. Hi tres Planetæ communitèr duplicem habere motum exiſtimantur, unum longitudinis, alterum latitudinis; ſicut enim *via Solis* (ſic enim illam vulgaris opinionis reſpectu voco) eſt obliqua Æquatori, ſic viæ horum Planetarum, viæ Solis, obliquæ ſunt, ideoq; ſuo loco motus ſuos in Longitudine deſcribam, & quomodò ſui Orbes à Plano Eclipticæ inclinent, demonſtrabo. Primò autem à motibus ſuis, quaſi longitudinis reſpectu, quæ eſt in conſequentiâ Signorum ab occaſu in Ortum, incipiam. Cumq; nobis qui hic ſuper primarium Planetam, ſcil. terram vivimus, eorum motus oculo jam directi, mox retrogradi, deindè ſtationarii, maximè inæquales & irregulares videantur, ut igitur φαινόμενα ſalvarent, veteres Aſtronomi (Terræ motûs ignari) alia auxilia effingere cogebantur, nam præter eccentricum motum, unumquemq; Planetam in Epicyclo, cujus centrum in Eccentrici circumferentiâ ferri putabant, peculiarem habere motum fingebant, adeoq; circulorum, & contrariorum motuum multiplicitatis auxilio (etſi omninò contra rationem & naturam) parvum abfuerit quin ad eorum apparitiones perventum ſit, ſicut ex *Ptolemæo*, & qui illum ſecuti ſunt, quorum opera hodiè extant, videre licet, poſtquam doctus, doctus ille *Copernicus* verum revelare cœpiſſet, *Joannes Keplerus*, *luminare illud digniſſimum*, venit, qui fictas præcedentium ſuppoſitiones omninò repudiavit, & in ſuo orbe veritatem movere docuit, ex quo poſteriorum Obſervationum auxilio, lucidi veritatis radii magis reſplendeſcunt, ſicut iis qui in cœleſtibus obſervationibus verſati ſunt, apparet.

4. Horum Planetarum orbes Soli eccentrici ſunt, quòd ex inæquali eorum ab eo diſtantiâ & Orbitarum ſuarum æquatione, quæ in uno Planetâ, quam altero, majores ſunt, ut poſthâc prolixius exprimetur, apparet.

5. *Aphelium Planetæ* eſt illud Orbitæ punctum, in quo cum Planeta locatur, maximo intervallo à Sole & centro Mundi diſtat, & tum tardiſſimè movetur; adeo ut ab hoc puncto diſtantia Planetæ recenſeatur, ut ex eâ inæqualitas motûs illius inveniatur; adeo ut arcus vel Planetæ ab hoc puncto diſtantia, Anomalia Eccentri vocetur, cujus uſus poſthâc oſtendetur.

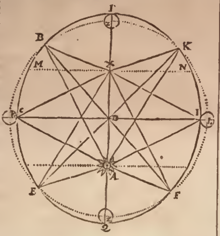
6. Hi tres ſuperiores Planetæ, *Saturnus*, *Jupiter*, & *Mars*, ſinguli in peculiaribus ſuis Orbitis, ab occaſu in Ortum circa centrum æquans æqualitèr moventur, Revolutiones ſuas annis Ægyptiis perficientes, ut ſequitur.

	An.	Di.	Ho.	′	″.	Diurni medii. ′	″	‴	iv	v	vi	vii.
♄	29	162	1	58	2.	2	0	35	27	8	44	51:
♃	11	315	14	30	54.	4	59	15	55	17	37	5.
♂	1	321	22	20	44.	31	26	39	7	57	13	40.

7. Con-

7. *Centrum æquans*, vel *Focus medii motûs* eſt punctum in lineâ Augis, quod inter Aphelium & centrum Eccentri collocatur; quod tàm procul à centro Eccentri verſus Aphelium diſtat quàm Sol à dicto centro versùs Perihelium. Ut in adjuncto Diagrammate P Q eſt linea Augis, D centrum Eccentri, A Focus veri motus, vel locus Solis, & X centrum Æquantis, vel alter Focus Ellipſeos, cui medius motus refertur, quæ duo puncta à D noto Orbitæ centro æqualitèr diſtant. Focus medii motus.

8. *Orbis Planetæ eſt Ellipſis* in quâ Planeta aſſiduum ejus curſum & motum, etſi nonnullâ inæqualitate, agit, quia converſiones ſuarum Orbitarum non ad ſua centra æquantur, ſed ad centrum Æquantis, quod punctum in hoc Diagrammate litera X notatur, ut ſupra dictum eſt. Orbis Planetæ quid.



9. Quia *Centrum Æquantis* vel punctum medii motûs versus Aphelium, vel Augem Eccentri locatur, neceſſariò ſequitur Planetam tardius moveri quando eſt ſupra *Diacentron*, vel in ſuperiore Orbitæ IPC, & citatiùs quando eſt infra Diacentron, vel in inferiore ejus parte C Q i; nam minor pars illius ad ſuperiorem partem circuli Æquantis pertinent, & major pars inferiori ejus parti debetur, ut in hâc Figurâ, ubi diſcernatis, quod illa pars Ellipſeos, quæ eſt ſupra centrum æquantis X, eſt minor quàm illa quæ infra idem eſt. Quare verus Planetæ motus inæqualis eſt.

10. Super punctum D, Eccentricus deſcribitur, qui eſt punctatus circulus, cujus circumferentia ad centrum Epicycli ferendum, valet, in cujus Epicycli perimetro, duplum Æquatæ Anomaliæ à P numeratur, quod ad verum Planetæ in Ellipſi ſuâ locum & ejus à centro Orbis ſui diſtantiam inveſtigandum valeat; cum enim Planeta eſt vel in Aphelio vel in Perihelio ſuo, invenitur in puncto P, cum autem eſt Diacentralis eſt in puncto C vel i, & tùm proximus & centro D.

11. *Anomalia Æquata eſt* vera Planetæ à puncto Aphelii ſui diſtantia, ſicut videtur ad D centrum Orbitæ, quod in priore Figurâ angulis P D B, P D E, vel P D F intelligitur. Anomalia æquata quid?

12. *Sed angulus ad Solem*, qui, angulis P A B, P A E, vel P A F, qui vulgò Coæquatæ Anomaliæ Eccentri appellantur, demonſtratur, eſt vera Planetæ ab Aphelio diſtantia, quemadmodum ad Solem & centrum Mundi videtur. Angulus ad Solem quid?

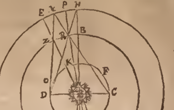
13. *Æquatio abſoluta* eſt differentia inter mediam Anomaliam, & angulum ad Solem, ſicut poſthac demonſtrabimus. Proſthaphæreſis Eccentri quid?

14. Ex generali Mundi Syſtemate diſcernamus quomodo *Sol* in centro & terra in medio Planetarum orbe locetur, quem locum *Ptolemæus & veteres Aſtronomi* Soli dabant, unde motus, & omnium Planetarum loca, ad unguem demonſtrare poſſimus; atq; hoc ego primùm generalitèr

hic

hic demonſtrabo, & deinde ad exquiſitè, quod hîc promiſſum eſt determinandum perveniam.

Demonſtratio.



In hâc Figurâ ſit A Sol & centrum Mundi, C R D S annuus Terræ orbis, B ♄ ♃ ♂ orbis unius Superiorum Planetarum, B locus Planetæ datus, & denique H P X E magnus Fixarum Stellarum, ſeu Sphæræ octavæ, orbis. Cum igitùr Terra erit in S, Solem ſpectans in A, in Conjunctione cum Planeta in B, tum in Planetâ, nulla annua inæqualitas apparet, ſed eſt in maximâ à Terrâ remotione in *Apogæ Epicycli*, ut veteres Aſtronomi exiſtimabant; ſed poſtquam Terra volvitur ab S in C, angulus annuæ inæqualitatis eſt angulus C R A, cui angulus P R X æqualis eſt; quod hic motum Planetæ auget, & longius, quàm reipſâ eſt, apparere facit. Verus enim locus in 8ª. Sphærâ eſt ad P, ſed Planeta eodem momento à terræ inhabitantibus ad X. Deniq; cum Terra ad R pervenit & Planeta ad Z, terra inter Solem & Planetam interponitur, quo tempore Planeta eſt Terræ proximus, vel, ut veteres Aſtronomi volunt, in *Perigæo Epicycli*: terrâ igitùr & Planetá in rectâ lineà A E, exiſtentibus, Planeta omninò ab annuâ inæqualitate liberatur, & quàmdiu *Terra* eſt in motu ab F ad O, tamdiu *Planeta Retrogradus* apparet, quantum arcus H X (in Fixarum Stellarum Orbe) continet, etſi interea, durante hàc apparitione, Planeta eſt in progreſſu ſecundum proprium ejus motum à B ad Z.

15. *Orbis Terræ Parallaxis* eſt differentia inter verum locum à Sole & locum qui à terrà videtur, quiq; in priori Diagrammate angulo repræſentatur; ad quam inveſtigandam, tria ſcienda ſunt (1.) Planetæ à Sole diſtantia (2.) Terræ à Sole diſtantia, (3.) Angulus incluſus, qui Planetæ à Sole locum ex vero Solis à Terrá loco ſubtrahendo, invenitur, & Anomalia Orbis annui vocatur.

16. Cum Orbis Anomalia eſt minor ſex Signis, Orbis Parallaxis ad locum Planetæ addit, & Terram habitantibus longius quàm eſt, apparere facit; cum autem ſex ſignis major eſt, eundem diminuit, & facit ut non tam procul quàm eſt appareat, quod ſupra perſpicuè demonſtravimus.

17. *Nodi ſunt duo puncta* in quibus planum Eclipticæ orbitam Planetæ in locis oppoſitis juxta Solis centrum interſecat. Ut in hâc figurâ, ubi T B L K planum Orbitæ repræſentat, & T D X K planum Eclipticæ, quæ ſe alternis vicibus in punctis T & K, juxta A centrum Solis appoſitis, interſecant.



18. *Argumentum Inclinationis* eſt arcus Orbitæ inter Nodum Boreum & Planetæ à Sole locum interceptus, qui in conſequentia Signorum numeratur. Ut in hoc Diagrammate

mate T Nodum Boreum repræſentat, K Nodum auſtrinum, & L locum Planetæ, ergò K L eſt Complementum Argumenti Inclinationis.

Circulus inclinationis qui.

19. *Circulus Inclinationis* eſt magnus circulus circa Solem in Fixarum Sphærâ, qui in Eclipticam rectis angulis incidit.

Inclinatio Planetæ.

20. *Inclinatio Planetæ* eſt circuli Inclinationis arcus, qui Inter Eclipticam & corpus Planetæ comprehenditur, & in ſupradicto Diagrammate, arcu L X repræſentatur, qui maximus eſt quando Planeta in limitibus maximæ latitudinis B D 90. gradus à Nodo ſuo diſtat. Hic autem Obſervandum eſt, quòd maxima *Saturni* à plano Eclipticæ Inclinatio eſt 41680. *Jovis* 12424. *Martis* 4913.

Locus Planetæ eccentricus.

21. *Locus Planetæ in Eclipticâ Heliocentricus*, eſt illud ipſum Orbitæ punctum in quod circulus inclinationis (qui à loco Planetæ in Orbe ſuo procedit) rectis angulis incidit, Ut in retento Diagrammate, L eſt locus Planetæ in Orbe ſuo, à quo Circulus Inclinationis procedit, & in Eclipticam ad X rectis angulis incidit, adeo ut X Eccentricus Planetæ locus in Eclipticâ ſit.

Locus Eclipticus Planetæ qui?

Reductio.

22. *Reductio* eſt differentia inter Longitudinem Planetæ in Orbitâ ſuâ, & ejus locum in Eclipticâ ab alterutro Nodo numeratum, & in præcedente Schemate, ex differentiâ inter K L & K X intelligenda eſt. De Reductione obſervandæ ſunt Regulæ ſequentes.

1. Si Planeta diſcedit à Nodo alterutro ad limites maximæ latitudinis, auferenda eſt Reductio à loco Heliocentrico in Orbitâ invento.

2. Si Planeta à limite recedens, accedit ad Nodum, addenda eſt Reductio, loco Heliocentrico in Orbitâ reperto.

Curtatio intervalli quid.

23. *Curtatio Planetæ* eſt particula à lineâ intervalli, vel ſuæ à Sole diſtantiæ abſciſſa, ſagittæ Inclinationis quadrans Ut in ſupradictâ figurâ, A L eſt intervallum ſeu diſtantia data, A X diſtantia curtata, cujus differentia eſt *ipſa Curtatio.*

Latitudo Planetæ quid.

24. *Latitudo Planetæ* eſt angulus ad *Terram* Orbitæ Planetæ à plano Eclipticæ inclinatione factus, quod in ſecundo Saturni Diagrammate angulò L S L repræſentatur, cujus inveniendi modus poſteà docetur.

Tabula particularium Dimenſionum Orbium Saturni, Jovis, Martis *&* *Terræ.*

Dimenſiones Orbium Planetarum.

	♄	♃	♂	⊖
Semidiameter Circuli Z D vel K D.	952500	521300	152040	100000
Semidiameter Epicycli Z P = K C.	788	299	327	8
Eccentricitas D X = D A.	54800	24960	14115	1788
Variatio Æquatæ Anomaliæ maxima.	0° 5' 0"	0° 2' 58"	0° 14' 55"	0° 1 26
Angulus maximæ inclinationis B A O.	2 30 30	1 21 56	1 51 4	0 0

His præmiſſis tanquam ad Theoriam noſtram enucleandam & intelligendam neceſſariis, jam ad veros eorum motus doctrinâ Trigonometriæ indagandos procedam.

CAP. XIV.

De Motibus Stellæ SATURNI.

DE SATURNO.

A *Saturno* ſupremo totius Mundi Syſtematis *Planetâ* hic primùm incipimus, & ut Hypotheſeos noſtræ veritatem, & fundamentum noſtrarum Tabularum confirmemus, approbatis & accuratiſſimis nuperi & verè admirati *Tychonis Brahei* obſervationibus utemur.

Ut autem veritas hujus doctrinæ Theoreticæ ſeſe nobis pellucidiùs patefaciat,

faciat, operæ-pretium proculdubiò foret, præſtantiſſimus illas Obſervationes veri illius loci expromere, quæ olim à D. *Tychone* & *Longomontano* in ſitibus hujus Planetæ acronychiis cœlitùs factæ ſunt, & poſtea ad motum ejus accidentarium extra ſitum acronychium perſcrutandum deveniam.

Primùm accepimus Obſervationem nobiliſſimi *Tychonis Brahei* factam anno

hriſti | Chriſti 1582. *Augusti* die 21 hor. 2 0′. P. M. *Uraniburgi*, quo tempore *Saturnus* obſervatus eſt in gr. 7 25′ ♓, in oppoſito Solis loco.

Propter Meridianorum diſcrimen auferenda ſunt Scrupula horæ 52′ quamobrem Tempus hujus Obſervationis datum eſt *Londini* hor. à meridie 1 8′.

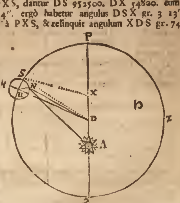
Medii motus SATURNI *hi ſunt.*

	Sig.	gr.	′	″.
Medius motus ♄	11	13	44	19.
Aphelium	8	25	45	25.
Nodus Boreus	3	20	21	28.
Anomalia media	2	17	58	54.

Ex quibus mediis motibus motus Saturni *verus determinetur hoc modo.*

Sit in Diagrammate oppoſito PHQP Orbis *Saturni*, ejuſq; centrum D, Aphelium P, Perihelium Q, ſitq; X *Focus Ellipſeos*, ad quem medii motus reſpiciunt, A *Sol* ſeu *Focus alter*, DX = DA ſemiſſis Eccentricitatis 54800. & PXS Anomalia media gr. 77 58′ 54″.

Primùm in Triangulo DXS, dantur DS 952500. DX 54800. cum angulo DXS gr. 77 58′ 54″. ergò habetur angulus DSX gr. 3 13′ 33″. Subtrahe autem DSX à PXS, & relinquit angulum XDS gr. 74 45′ 21″. quo duplicato, venaberis Anomaliam variationis gr. 149 30′ 42″, ex quâ, & variatione maximâ 5′ 0″. variatio SH erit 2′ 32″, ut ex doctrinâ in Solis Theoriâ, evincitur. Adde autem angulum SDH 2′ 32″, ad angulum PDS gr. 74 45′ 21″, eritq; angulus PDH gr. 74 47′ 53″. duplicato autem hoc angulo PDH, habebis motum Epicycli αN = angulo αHN gr. 149 35′ 46″.



ORIA | Saturni | gitudi- | i Geo- | i forma | pſi.

In Triangulo DHN habentur latera DH 952500, HN 788. cum angulo indidem comprehenſo DHN gr. 30 24′ 14″. (eſt enim angulus DHN complementum anguli αHN ex Hypotheſi) ergò dantur anguli HND gr. 149 34′ 19″: HDN 1′ 27″, cum latere DN 951816. ablato angulo HDN à PDH gr. 74 48′ 52″. relinquitur Anomalia ſecundò æquata PDN gr. 74 46′ 26″, cujus Complementum ad Semicirculum eſt angulus ADN gr. 105′ 13′ 34″.

Ad hæc in triangulo ADN, ex datis lateribus DN 951816, DA 54800. & angulo comprehenſo ADN gr. 105′ 13′ 34″, datur angulus ad Solem DAN gr. 71 38′ 29″. qui ablatus ab Anomaliâ mediâ gr. 77 58′ 54″, relinquit Æquationem veram & abſolutam gr. 6 20′ 25″. ſubtrahendam. Jam ſi ex motu *Saturni* medio rejiciatur hæc Eccentri Æquatio, relinquitur locus *Saturni* verus à Sole in Eccentro Sig. 11. gr. 7 23′ 54″.

Deniq; ſi auferatur locus Nodi Borei Sig. 3 gr. 20 21′ 28″, à loco Eccentrico,

trico, Argumentum latitudinis oſtendit eſſe Sig. 7 gr. 17 2′ 26″, ex quo invenitur Reductio (ut infra docebitur) 1′.40″ ſubtrahenda. Locus igitur *Saturni* in Ecliptica eſt in gr. 7 22′ 14″ ♓, qui Obſervationi *Tychonicæ* proximè conſentit.

Synopſis quatuordecim aliorum locorum SATURNI *in vero Solis oppoſitu, cum Calculo veri ejus loci ad eadem tempora juxta præcedentem Triangulorum doctrinam exeuntium.*

Synopſis ſuſſionum 14. Acronychiarum. SATURNI.

Tempus Uraniburgi Anni	Men.	D.	H.	M.	Long. obſer. Sig.	Gr.	′	Longit. media S.	gr.	′	″	Anomalia S.	gr.	′	″	Longit. Supt. S.	gr.	′	″	Dif. ′	″	
1583.	Sept.	3	1	0	♓	19	50	11	26	23	58	3	0	37	11	♓	19	47	50	2	10	—
1584.	Sept.	15	6	30	♈	2	34	0	9	2	8	3	12	12	47	♈	2	31	7	2	53	—
1585.	Sept.	28	19	30	♈	15	39½	0	21	44	57	3	25	55	24	♈	15	38	50	0	34	—
1586.	Octo.	12	11	0	♈	29	2	1	4	25	58	4	8	35	1	♈	2[illegible]	4	11	2	11	+
1587.	Octo.	26	9	0	♉	12	46	1	17	7	31	4	21	15	10	♉	12	47	39	1	39	+
1588.	Nov.	8	10	10	♉	26	44	1	29	47	21	5	3	53	37	♉	26	43	43	0	17	—
1589.	Nov.	22	14	30	♊	10	53	2	12	31	27	5	16	36	20	♊	10	56	07	2	0	+
1590.	Decem.	6	20	30	♊	25	10	2	25	13	41	5	29	17	10	♊	25	9	41	0	19	—
1591.	Decem.	21	1	0	♋	9	24	3	7	55	48	6	11	57	54	♋	9	24	15	0	15	—
1594.	Ian.	20	21	0	♌	21	15	4	16	0	40	7	19	58	36	♌	21	15	23	0	7	—
1608.	Jul.	9	3	0	♑	26	53	10	0	25	31	1	4	5	27	♑	26	55	34	2	34	+
1609.	Iul.	21	13	0	♒	8	31	10	13	4	3	1	16	42	37	♒	8	28	31	2	29	—
1610.	Aug.	2	22	30	♒	20	10	10	25	42	34	1	29	19	44	♒	20	13	8	3	8	+
1611.	Aug.	15	16	0	♓	2	12	11	8	21	45	2	11	57	32	♓	2	12	44	0	44	+

Examen veri motûs SATURNI *extrà ſitum Acronychium.*

Expeditâ Inæqualitate *Saturni* Periodicâ in Ipſius Ellipſi, Secundam Inæqualitatem, quam pati videtur illius motus per motum *Terræ* annuum circa corpus Solarem inquirere debemus, & in hunc finem, aliquot Obſervationes ſelectiſſimas à D. *Tychone* extra ſitum Acronychium factas excerpemus, ut veritas hujus Theoriæ *Saturni* nobis pateat. De motu ♄ extra ſitum Acronychium.

Obſervatio *Tychonis* prima cadit in annum 1587. diem 15 *Januarii* hor. 5 45′ *Uraniburgi*, quo tempore, *Saturnus* ex *Terrâ* videbatur in gr. 26 24′ ♈, cum latitudine Auſtrinâ gr. 2′ 25″. Annus 1587.

Proceſſus Calculi.

Verus Solis locus tunc fuit in gr. 5 22′ 25″ ♒, & diſtantia Terræ à Sole 98450.

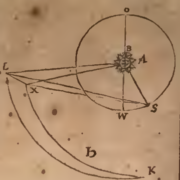
Medii motus Saturni *tales ſunt.*

	Sig.	Gr.	′	″.
Medius motus Saturni	1	7	36	27.
Aphelium	8	25	51	19.
Nodus Boreus	3	20	24	6.
Anomalia media	4	11	45	8.

Ex his motibus exoritur angulus ad *Solem* gr. 126 36′ 35″, qui ablatus ex Anomaliâ mediâ, relinquit Proſthaphæreſin Eccentri gr. 5 8′ 33″. Aufer igitur hanc è medio motu Saturni gr. 37 36′ 27″, & remanet locus Saturni Eccentricus gr. 32 27′ 54″.

De Reductione loci ♄ ad Eclipticam.

	S.	°	′	″.
Locus Saturni eccentricus	1	2	27	54.
Nodus Boreus ſubtrahend.	3	20	24	6.
Argumentum latitudinis	9	12	3	48.



In Triangulo Sphærico rectangulo XKL datur angulus maximæ Inclinationis XKL gr. 2.30′ 30″, cum latere KL gr: 77 56′ 12″, quod eſt Complementum Anomaliæ Latitudinis, ex quibus datum eſt latus XK gr. 77 55′ 29″. Differentia autem Baſis KL & lateris KX 0′ 43″, eſt Reductio quæſita. Et quoniam movetur *Saturnus* à limite maximæ latitudinis ad Nodum Bureum, monſtrat Reductionem eſſe addendam.

	Sig.	gr.	′	″
Locus Saturni eccentricus	1	2	27	54.
Reductio *add.*			0	43.
Locus ♄ ad Eclipticam reductus	1	2	28	37.
Locus Solis verus	10	5	22	25.
Anomalia Orbis annui.	9	2	53	48.

De Inclinatione Orbis SATURNI *ab Ecliptica.*

In Diagrammate ſit (ut prius) L locus *Saturni* in Orbitâ, X in Eclipticâ, K Nodus Boreus, KL Complementum Argumenti Latitudinis gr. 77 56′ 12″ & LX Inclinatio ab Eclipticâ.

Ut Radius gr. 90, ad Inclinationem Maximam 41685, ita Sinus KL gr. 77 56′ 12″, ad LX 40764. quæ eſt Inclinatio communi Radio congruens, ſed qualium diſtantia *Saturni* à Sole 918644. hic Radio utitur, Inclinatio erit tantùm 39315.

2. Prob. 1. Ad hæc in Triangulo Rectangulo AXL, notum eſt Latus AL 918644, & latus XL 39315, ergò dabitur diſtantia curtata AX 917802.

Inveſtigatio Parallaxeωs Orbis annui in Saturno.

In eodem Diagrammate ſit A Sol, S Terra, OWS Orbis *Terræ* annuus, X locus *Saturni* ad Eclipticam reductus, & angulus SAX exceſſus Anomaliæ Orbis ſupra Semicirculum.

2. Plan. Ergò in Triangulo ASX, dantur latera AX 917802, AS 98450, cum angulo ab iiſdem comprehenſo SAX gr. 92 53′ 48″, notus itaq; eſt angulus AXS gr. 6 4′ 55″, qui eſt Parallaxis Orbis annui, & angulus Elongationis ASX gr. 81 1′ 17″.

	Sig.	Gr.	′	″
Locus ♄ à ☉ ad Eclipticam reductus	1	2	28	37.
Parallaxis Orbis annui Subtr.		6	4	55.
Verus locus ♄ à terrâ viſus.	0	26	23	42. id eſt in gr.

26′ 24′ ♈, omninò obſervationi congruens.

4. Plan. In eodem Trigono, ex angulis ASX gr. 81 1′ 17″, SAX gr. 92 53′ 48″ & latere AX 917802, datur latus SX 927960. quod eſt diſtantia Saturni à Terrâ.

Determinatio

Determinatio Latitudinis Saturni in Terrâ.

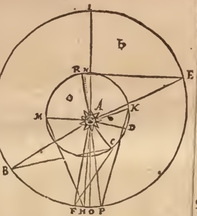
In Figurâ præcedente, repræſentet S terram, S X diſtantiam Saturni à Terrâ, & X L inclinationem Saturni; quamobrem in triangulo S L X (ad X Rectangulo) habentur X S 927960, X L 39315, erit ergò angulus latitudinis Saturni X S L gr. 2 25′ 33″. Per Caſ. 4. Triang. Plan. Rectang.

Quinque aliæ Obſervationes locorum SATURNI *extra ſitum Acronychium factæ.*

I. Accepimus inprimis Obſervationem à *Tychone* adhibitam, anno 1587. die 9 *Januarii*, hor. 9 45′. *Uraniburgi*, quo tempore *Saturnus* videbatur in gr. 26 8′ ♈, cum latitudine auſtrina, gr. 2 28′. Obſervatio *Tychonis Brahei* anno 1587.

Verus locus Solis tunc temporis fuit in gr. 29 26′ 7″ ♑, & diſtantia à Terrâ, 98368.

Medius motus Saturni erat in gr. 7 24 43 ♉, Aphelium in gr. 25 51′ 17″ ♐, Nodus Boreus gr. 20 24 6 ♋, Anomalia Eccentri media, Sig. 4 gr. 11 33′ 26″. Ab hâc igitur (ſecundum doctrinam ſupra traditam) datur angulus ad Solem gr. 126 23′ 59″, qui ablatus ex Anomaliâ Eccentri mediâ ſeu ſimplici, relinquit Æquationem Eccentri veram gr. 5 9′ 27″ ſubtrahendam, quæ rejecta ex medio motu Saturni, reliquam facit Longitudinem Saturni in Eccentro gr. 2 15′ 16″ ♉, cui addita Reductio 0′ 41″, conſtituit locum verum Saturni, à Sole in Eclipticâ in gr. 2 15′ 56″ ♉, unde (per ablationem loci ♄ è loco ☉) habetur Anomalia Orbis annui Sig. 8 gr. 27 10′ 11″.



Quocirca in Triangulo A B C dantur latera A B 917951. A C 98368. cum angulo ab iiſdem comprehenſo C A B gr. 87. 10′ 11″, habentur ergò anguli A C B gr. 86 41 20″, C B A gr. 6′ 8′ 28″, & latus B C 918364 At Orbis annui Æquatio ablata loco Saturni à Sole in Ecliptica præinvento, efficit locum ♄ verum à Terra in gr. 26 7′ 28″ ♈, obſervationi *Tychonis* ad amuſſim conſentientem. Theoria motûs ♄ in Longit.

2. Anno *Chriſti* 1590. die 8 *Februarii*, horâ 8. veſpertinâ, nobilis ille *Tycho* obſervavit *Uraniburgi*, *Saturnum* in gr. 7 32′ ♊, cum latitudine meridionali gr. 1 30′. Vide *ASTRONOMIAM DANICAM*, fol. mihi 327. Obſervatio T. B. anno 1590.

Tunc fuit verus locus Solis in gr. 0 2′ 19″ ♓, & diſtantia Terræ à Sole 98948. in Anomaliâ ſui Eccentri Sig 1 gr. 22 49′ 54″.

Medius motus *Saturni* juxta *Tabulas* noſtras *Aſtronomicas*, fuit in gr. 15 7′ 41″ ♊, Aphelium Sig. 8. gr. 25 55′ 24″. Nodus Boreus Sig. 3. gr. 20 25′ 56″. Anomalia media Eccentri ♄ Sig. 5 gr. 19 12′ 17″, ergò per triangulorum ratiocinium invenitur Anomalia æquata gr. 168 35′ 14″, correcta gr. 168 33′ 18″. Anomalia verò coæquata gr. 168 34′ 24″. Unde reperi-

tur angulus à Sole gr. 167 52′ 55″, qui ablatus Anomaliæ Eccentri mediæ relinquit Proſthaphæreſin Eccentri veram & abſolutam gr. 1 19′ 22″, quâ ablatâ ex motu *Saturni* medio, relinquitur verus locus *Saturni a Sole* in Eccentro in gr. 13 48′ 19″ ♊, cui adjecta Reductio 1′ 34″, conſtituit verum locum ♄ à ☉ ad Eclipticam reductum in gr. 13 49′ 53″ ♊. Ut autem innoteſcat Anomalia Orbis annui, aufero locum *Saturni* ita inventum è loco *Solis* vero Sig. 11 gr. 0 2′ 19″, & relinquitur Anomalia Orbis Sig. 8. gr. 16 12′ 26″.

in Triangulo igitùr Obliquangulo A D F dantur A F, diſtantia ♄ à ☉ curt. 899266. A D, diſtantia ⊕ à ☉, 98948. cum angulo ab iis comprehenſo D A F, gr. 76 12′ 26″, dabuntur ergò anguli, A D F, gr. 97 31′ 49″, A F D gr. 6 15′ 45″, cum latere D F 880931. Dein ſubtrahenda eſt hæc Orbis annui Parallaxis gr. 6 15′ 45″, à loco ♄ à ☉, & relinquitur verus locus *Saturni à Terrâ* in gr. 7 34′ 8″ ♊, proximè obſervationi *Tychonicæ* conveniens.

Obſervatio altera T. B. Anno 1590.

3. Eodem prorſus anno 1590. die 7 *Septembris*, horis à Meridie 12. à *Tychone Brahæo*, obſervatus eſt *Saturnus* in gr. 28 6′ ♊, cum latitudine auſtrinâ gr. 1 11″.

Medius motus Solis erat in gr. 26 30′ 18″ ♍, verus in gr. 24 29′ 39″ ♍, diſtantia Terræ à Sole part. 100319.

Medius motus Saturni, gr. 22 12′ 6″ ♊, Anomalia Sig. 5. gr. 26 15′ 55″, Æquatio abſoluta gr. 0 27′ 38″, locus ergò Saturni ex Sole erat in gr. 21 44′ 28″ ♊, in Eclipticâ autem in gr. 21 45 51′ ♊, diſtantia ♄ à ☉ curtata 898421. Si verò locus ♄ à ☉ ſubtrahendus loco Solis vero gr. 24 29′ 39″ ♍, monſtrat Anomaliam Orbis Sig. 3 gr. 2 43′ 48″.

In obſervatione iſtâ, ſit locus *Saturni* in H, *Terræ* in M, *Solis* in A, datum eſt latus A H 898421. A M 100319. cum angulo H A M gr. 87 16′ 12″, ergò dabuntur anguli reliqui A M H gr. 86 19′ 56″, A H M gr. 6 23′ 52″, cum latere H M 899245, ideo ſi hanc Orbis Parallaxin gr. 6 23′ 52″, adjunxeris loco Saturni à Sole gr. 21 45′ 51″ ♊, habebis verum locum *Saturni à Terrâ*, in gr. 28 9′ 43′ ♊, qui obſervationi *Tychonicæ* proximè conſentit.

Obſervatio T. B. anno 1591.

4. Anno Chriſti 1591 die 17 *Martii* hor. 7 30′, P. M. *Uraniburgi* obſervata eſt Stella *Saturni* in gr. 22 43′ ♊, cum latitudine auſtrinâ gr. 0 56′.

Medius motus *Solis* tunc fuit in gr. 4 34′ 44″ ♈, verus in gr. 6 37′ 40″ ♈, diſtantia *Terræ à Sole* 100009.

Medius motus *Saturni* in gr. 28 35′ 36″ ♊, Anomalia Sig. 6. gr. 2 38′ 43″, Æquatio abſoluta gr. 0 19′ 34″ addenda, locus igitùr ♄ ex ☉ in Orbitâ erit in gr. 28 55′ 10″ ♊, in Eclipticâ in gr. 28 56′ 18″ ♊, diſtantia à Sole curtata 898425. Anomalia Orbis annui Sig. 9 gr. 7 41′ 22″. Sit in hâc Obſervatione, locus *Terræ* in K, *Saturni* in P, *Solis* in A, habemus Angulum P A K gr. 97 41′ 22″, dabitur ergò angulus A P K gr. 6 12′ 13″, cum latere P K 917179, deindè aufero Parallaxin Orbis annui paulò ante inventam gr. 6 12′ 13″, à loco ♄ à ☉, gr. 28 56′ 18″ ♊, & relinquitur verus locus ♄ à ⊖ in gr. 22 44′ 5″ ♊, qui cum Obſervatione convenit.

Obſervatio *Martini Hortenſii* Anno 1628.

Anno Chriſti 1628. die 23 *Junii* circa mediam noctem, *Saturnus* viſus eſt *Gandavi* conjunctus Stellæ ſub auſtrali Virginis humero, quoad longitudinem, ſed auſtralior eſſe ſcrupulis circitèr 25, ut obſervavit *Martinus Hortenſius*. *Vide P. Lansbergii Obſervat. Aſtron. Theſaurum*, fol. 162.

Datus eſt, hoc tempore, verus Solis locus in gr. 12 11′ 4″ ♋, & diſtantia Terræ à Sole 101786.

Medius motus Saturni ♎ gr. 4 36′ 5, Anomalia media Sig. 9. gr. 7 49′ 20″, Æquatio Eccentri gr. 6 27′ 10″ addenda, diſtantia ♄ à ☉ 962906, erit igitùr locus Saturni Heliocentricus gr. 11 3′ 15″ ♎, locus autem ad Eclipticam reductus gr. 11 2′ 42″ ♎, qui ablatus à vero Solis loco, relinquit Anomaliam Orbis annui Sig. 9 gr. 1 8′ 22″. Sit in Obſervatione iſtâ, Saturnus

in

in E, Terra in R, Sol in A; erit itaque diſtantia Saturni à Sole, A E, Terræ à Sole A R, Saturni verò à Terrâ R E.

Quoniam in Triangulo A R E, habemus A E 962906. A R 101786, cum angulo R A E gr. 91 8′ 22″, dantur anguli E R A gr. 82 50′ 25″. A E R gr. 6 1′ 13″, cum latere E R 970282. Parallaxi verò Orbis annui gr. 6 1′ 13″, ablatâ è vero Saturni motu à Sole gr. 11 2′ 42″ ♎, relinquitur verus *Saturni locus è Terrâ* in gr. 5 1′ 29″ ♎.

Locus autem Stellæ fixæ (quæ eſt 7. Aſteriſmi ♍) fuit in gr. 4 58′ 19″ ♎, ita ut differentia longitudinum ſit 3′ 10″ tantùm, quæ nullius eſt momenti, quando forſitan, nudo oculo, facta fuit Obſervatio.

Inveſtigatio Latitudinis Saturni in his datis Obſervationibus.

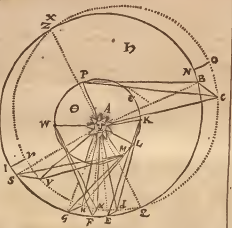
In primâ Obſervatione à D. *Tychone* adhibita, anno 1587. die *Januarii* 9 hor. 9 45′, *Latitudo Saturni obſervata* fuit gr. 2 28′ auſtrina. Annus 1587.

In Schemate adjuncto ſit Q Nodus ♄ boreus, X Nodus auſtrinus, N O limes latitudinis boreus, ſeu inclinatio Orbis ♄ à plano Eclipticæ maxima, S locus Saturni in Orbitâ, V locus in Eclipticâ, S V inclinatio ♄ ab eâdem, & denique S M V latitudo quæſita.

I. Pro Reductione inveniendâ.

Primùm ſubtrahatur Nodus Boreus Sig. 3 gr. 20 24′ 6″, è loco Saturni Eccentrico Sig. 1 gr. 2 15′ 16″, & remanet Argumentum latitudinis Sig. 9 gr. 11 51′ 10″.

In Triangulo igitùr Sphærico Q S V ad V rectangulo, dantur Q S gr. 78 8′ 50″, S Q V gr. 2 30′ 30″, ergò habetur Q V gr. 78 8′ 9″. Differentia Q S & Q V 0′ 41″ eſt Reductio, quæ addita loco *Saturni* Eccentrico efficit locum verum ad Eclipticam reductum Sig. 1 gr. 2 15′ 56″. Theoria latitudinis ♄.



2. Pro Inclinatione.

In eodem Triangulo Q S V data eſt Q S gr. 78 8′ 50″, cum angulo S Q V gr. 2 30′ 30″, ergò habetur S V, quod menſurat angulum Inclinationis ad Solem S A V gr. 2 27′ 17″.

Jam ad Triangulum A V S advenio, ubi habemus latus A S 918794, cum angulo V A S gr. 2 27′ 17″, ergò innoteſcit diſtantia curtata A V 917951, & S V inclinatio quæſita, 39353.

3. Pro

3. *Pro latitudine inveſtigandâ.*

In Obſervatione *Tychonicâ* hic tractatâ, ſit S locus ♄ in Orbitâ, V locus in Eclipticâ, M locus Terræ, & angulus V M S latitudo Saturni in Terrâ.

In Triangulo dato S M V, quoniam dantur L V 918364, S V 39353, ergò reperitur angulus veræ latitudinis ♄ in Terrâ, V M S gr. 2 27′ 13″. Merid. Deſc. Obſervationi *Tychonicæ* reſpondens.

bſervatio . B. Ann. 590.

2 In Obſervatione ſecundâ, 1590. die 8 *Februarii*, hor. 8. *Nobilis ille Tycho* obſervavit latitudinem Saturni gr. 1 30′. Merid. quo tempore reperitur Argumentum latitudinis Sig. 10 gr. 23 22′ 23′, ita ut inter Saturnum & Nodum ejus boreum erat gr. 36 37′ 37″, ex quibus acquiritur Reductio 1′ 34″, & Inclinatio Orbitæ Saturni à Plano Eclipticæ 23487.

In Triangulo L G H dantur G H 880931, G H 23487, ergò datur angulus latitudinis Saturni in Terra, G L H gr. 1 31′ 38″. Omnibus modis ut *Tycho* obſervavit in *Daniâ*.

bſervatio T. .1590.

3. Anno 1590. die 7 *Septembris* hor. 12. obſervata fuit latitudo Saturni gr. 1 11′, auſtrina. In iſtâ obſervatione *Tychonicâ*, Argumentum latitudinis ♄ eſt Sig. 11 gr. 1 18′ 11″, inclinatio Orbitæ ab Eclipticâ 18884, diſtantia à Terra 899243. Quamobrem in Triangulo W F α, habentur W α 899243. α F 18884, ergò diſpaleſcit angulus α W F gr. 1 12′ 10″, qui eſt *latitudo Saturni in Terrâ*.

bſervatio *Tychonis* anno 591.

4. Anno Chriſti 1591. die 17 *Martii* horis à meridie 7 30′, latitudo Saturni fuit obſervata gr. 0 56′, Merid. quo tempore habemus diſtantiam ♄ à Terrâ K D 917179, & deviationem ab Eclipticâ d E 14427, idcirco per Trianguli analyſin, datur angulus latitudinis Saturni in Terrâ E K d gr. 0 54′ 4″. Merid. Deſc. vix aliter quam *Tycho* obſervavit.

5. Anno 1628. quæratur latitudo ♄. Argumentum latitudinis *Saturni* tunc erat Sig. 2 gr. 20 14′ 11′, inclinatio 41569, & diſtantia *Saturni* à centro *Terræ* 970282.

In Triangulo itaq; P B C dantur P C & B C, ex quibus datur angulus latitudinis B P C gr. 2 27′ 12″. Sept. Aſcend. Latitudo Stellæ eſt gr. 2′ 50′. Sept. ergò ♄ erat auſtralior Stellâ circitèr 25′, quemadmodum obſervavit Clariſſimus vir *M. Hortenſius*.

CAP. XV.

De Motibus Stellæ JOVIS, & primùm de primâ illius Inæqualitate in Ellipſi.

DE JOVE.

UT innoteſcat hujus Hypotheſeos veritas, fulſiones 8. acronychias olim à D. *Tychone* obſervatas, quas à *Longomontano* Lib. 2. Cap. 5. Theoric. recenſetur, adhibebimus.

bſervat. T.B. nno 1583.

Prima accidit anno 1583. die 6. *Septembris*, Hor. 20 10′, quo tempore ♃ obſervatus eſt in gr. 23 33′ ♓, in oppoſito Solis loco, qui tunc temporis occupabat gr. 23 33′ 5″ ♍, juxta Tabulas noſtras.

THEORIA ♃.

Medius motus *Jovis* tunc fuit in gr. 24 52′ 41″ ♓, Aphelium Sig. 6. gr. 7 21′ 54″. Anomalia media Sig. 5. gr. 17 30′ 47″, ex quibus mediis motibus, verus motus Stellæ ♃ demonſtratur hoc modo. Deſcripto primùm Diagrammate mediis his motibus conſentaneo, numeretur à P per H in S, Anomalia media gr. 167 30′ 47″, cujus Complementum gr. 12 29′ 13″, erit angulo S X D æquale. In Triangulo igitur Obliquangulo S D X, dantur

duo

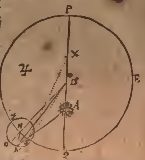


Fig. I.

duo · latera, DS 5213000. DX 24960. cum angulo DXS gr. 12 29′ 13″, dabitur ergò angulus XDS gr. 166 55′ 11″, quo duplicato, prodit Anomalia variationis gr. 333 50′ 23″, Variatio itaque SH erit 1′ 18″, ſubtrahenda (qualium maxima eſt 2′ 58″. Radio gr. 90. debita) quâ ab angulo PDS gr. 166 55′ 11″ ablatâ, manebit angulus PDH gr. 166 53′ 53″, cujus duplum eſt motus Epicycli OZN, gr. 133 47′ 46″, ideoq; angulus DHN gr. 153 47′ 46″.

Ergò in Triangulo DHN, ex lateribus DH 521300. NH 299, & angulo ab iiſdem comprehenſo DHN gr. 153 47′ 46″, dabuntur anguli DNH gr. 26 11′ 22″, HDN 0′ 52″, & DN 521567. Anomalia igitur Coæquata. PDN erit gr. 166 54′ 45″.

Ad hæc in Trigono DAN notum eſt latus DN 521567. DA 24960, cum angulo comprehenſo ADN gr. 13 5′ 15″; (qui eſt complementum anguli PDN ad Semicirculum) diſpaleſcit ergò angulus ad Solem DAN gr. 166 15′ 40″, qui Anomaliæ mediæ rejectus, relinquitur *Proſthapheſis Eccentri* gr. 1 15′ 7″. auferenda; Subtraho igitur hanc à medio motu ♃ Sig. 11 gr. 24 52′ 41″, & reliquus eſt verus motus ♃ à ☉ in Eccentro Sig. 11 gr. 23 37′ 34″. Deindè detrahatur Nodus Boreus Sig. 3 gr. 6 32′ 15″, à loco ♃ eccentrico, & reſiduum eſt Argumentum latitudinis, Sig. 8 gr. 17 5′ 19″, ex quo (ſecundum doctrinam ſupra traditam) decerpatur Reductio 0′ 14″ cum titulo ſubductionis, quam aufero ex loco ♃ eccentrico, & relinquitur *verus locus* ♃ à ☉ in Eclipticâ, gr. 23 37′ 20″ ♓, proximè Obſervationi *Tychonicæ* conſentiens.

Poſtremò in eodem Trigono, ex angulis DAN gr. 166 15′ 39″, ADN gr. 13 [illegible] 5″, & latere DN 521567, datum eſt latus AN 497276, quod eſt intervallum ♃ & ☉.

Synopſis 7. aliarum Obſervationum veri loci ♃ in vero ejus oppoſito Solis.

Aliæ 7. ſulſiones ♃ acronychiæ.

Tempus URANIBURGI.					Long. Obſ.			Longit. Med.				Anom. Med.				Long. Sup.				Differ.		
					S.	gr.	′	S.	gr.	′	″	S.	gr.	′	″	S.	gr.	′	″	′	″	
1584.	Octob.	13	7	20	♉	0	22	0	28	20	5	6	20	56	43	♉	0	24	19	2	19	+
1591.	April.	23	19	0	♏	13	10	7	16	28	18	4	8	56	11	♏	13	10	22	0	22	+
1595.	Septemb.	12	6	10	♓	28	56	11	29	41	1	5	22	3	1	♓	28	52	47	3	13	−
1596.	Octob.	18	12	0	♉	5	40	1	3	7	19	5	25	27	50	♉	5	36	25	3	35	−
1607.	Septemb.	17	11	10	♈	4	10	0	4	28	20	5	26	34	13	♈	4	7	29	2	31	−
1610.	Decemb.	30	14	40	♋	19	36	3	14	14	21	9	6	15	51	♋	19	38	48	2	48	+
1613.	Mart.	1	22	0	♍	21	45	5	20	6	11	11	12	4	45	♍	21	42	14	2	46	−

Quomodo verus Jovis *motus extra ſitum Acronychium ex mediis datis demonſtretur.*

Obſervatio *Pariſiis* facta anno 1639.

Anno Salvatoris noſtri 1639, die 21 *Auguſti*, hor. 8. P. M. *Pariſiis*, videbatur ♃ infra ſupremam in *fronte* ♏; erat intervallum ♃ & Stellæ 24′ circitèr, ſed fuerat ♃ in Azimutho orientaliori ſcr. 6′, quocirca ♃ ex calculo ſuperaverat ſtellam in longitudine ſcr. 2, aut circitèr. Stella Fixa tunc temporis tenebat gr. 28 8′ 12″ ♏, cum latitudine boreâ gr. 1 5″, ergò Jupiter erat in gr. 28 11′, vel 12′ ♏, cum latitudine boreâ gr. 0 42′.

Verus

Verus locus Solis erat in gr. 7 56′ 0″ ♍, & diſtantia Terræ à Sole 100834.

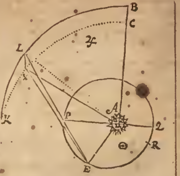
Medius motus Jovis tunc ſuit Sig. 8 gr. 13 50′ 1″. Aphel. Sig. 6. gr 8 36′ 55″, Anomalia media Sig. 2 gr. 5 13′ 6″, ex quibus (juxta doctrinam priorem) datus eſt angulus ad Solem gr. 60 21′ 18″, jam aufero hunc angulum ab Anomaliâ mediâ, & relinquitur Æquatio Eccentri abſoluta gr. 4 51′ 48″, quæ ablata ex medio motu ♃ Sig. 8 gr. 13 50′ 1″, relinquit locum ♃ Eccentricum Sig. 8 gr. 8 58′ 13″.

De Reductione loci ♃ ad Eclipticam.

Ex loco *Jovis* præinvento Sig. 8 gr. 8 58′ 13″, ſubtrahendus eſt Nodus Boreus Sig. 3 gr. 7 4′ 22″, & reſiduum erit Argumentum latitudinis Sig. 5 gr. 1 53′ 51″. Ergò in Triangulo Sphærico Rectangulo K L X, datur Hypothenuſa K L gr. 28 6′ 9″, cum angulo maximæ inclinationis L K X gr. 1 21′ 56″, itaque K X erit gr. 28 5′ 45″. Differentia autem K L & K X 0′ 24″, eſt Reductio quæ addenda eſt loco ♃ Eccentrico, ut locus ad Eclipticam reductus, habeatur.

	Sig.	gr.	′	″.
Locus ♃ eccentricus	8	8	58	13.
Reductio add.			0	24.
Locus ♃ à ☉ in Eclipticâ	8	8	58	37.
Locus verus ☉ à terrâ	5	7	56	0.
Anomalia Orbis annui	8	28	57	23.

Pro Inclinatione inveſtigandâ.



In Diagrammate appoſito, ſit A Sol, P E R P Orbis Terræ annuus, K L B portio Orbitæ ♃ à plano Eclipticæ K X C inclinans, K Nodus auſtrinus, B limes auſtrinus, ſeu punctum maximæ deviationis Orbitæ à plano Eclipticæ C. Eſto item L locus Jovis in Orbitâ, X locus in Eclipticâ, quocirca ex angulo deviationis in Sole L A X, exoritur Angulus latitudinis in Terrâ X E L, ut infra docebimus. Sed pro Inclinatione, ſic ratiocinor. Ut Radius K B gr. 90. ad inclinationem maximam B C 12424. ita ſinus K L gr. 28 6′ 9″, ad inclinationem L X 5851. Radio communi 521300, competentem, ſed qualium A L 533021, pro Radio habetur, erit L X 5984.

Alitèr, in Triangulo A X L, ex Hypothenuſa A L 533021, & angulo inclinationis ad Solem L A X gr. 0 38′ 36″, innoteſcit latus X L 5984, & latus A X 532987, quod eſt diſtantia curtata.

Vel in eodem Triangulo A X L, datis A L 533021. X L 5984, invenitur diſtantia curtata A X 532987. ut priùs.

Pro Parallaxi Orbis annui inveſtigatione.

In Diagrammate appoſito, numeretur Anomalia Orbis ab R per P ad E gr. 268 57′ 23″, de quibus, ablato Semicirculo gr. 180, manebit angulus

E A X

E A X gr. 88 57′ 23″. In Triangulo igitùr obliquangulo, ex datis lateribus A X 532987. A E 100834, & angulo comprehenſo X A E gr. 88 57′ 23″, inveniuntur anguli A E X gr. 80 17′ 45″. A X E gr. 10 44′ 51″, qui eſt angulus Parallaxeωs Orbis annui in ♃.

	Sig.	gr.	′	″.
Locus ♃ eccentricus ad Eclipticam reductus	8	8	58	37.
Parallaxis Orbis annui ſubtrahenda		10	44	51.
Verus locus ♃ à Terrâ.	7	28	13	46.

Adhæc in eodem Triangulo, datis E A X gr. 88 57′ 23″, A E X gr. 80 17′ 45″, cum latere oppoſito A X 532987. datur E X 540535, diſtantia ♃ à terrâ.

De Latitudine ♃ ad Terram inveniendâ.

Ex jam datis faciſe ad inveſtigationem latitudinis ♃ perveniamus, nam in Triangulo rectangulo E X L, ex lateribus E X 540635, L X 5984, invenitur angulus latitudinis L E X gr. 0 38′ 2″, quamproximè Obſervationi conſentiens.

Synopſis aliarum 6. Obſervationum veri ♃ loci extra ſitum Acronychium.

Anno Chriſti 1587, die 14 *Januarii*, horis à meridie 8. Stella Jovis *Uraniburgi* conſpecta eſt in gr. 7 19′ ♋, cum latitudine boreâ gr. 0′ 8″. Fuit Obſervat. T. B. 1587.
tunc temporis verus Solis locus in gr. 4 27′ 8″ ♒, & diſtantia Terræ à Sole 98437.

Medius motus Jovis erat Sig. 3 gr. 6 45′ 7″, Aphelium Sig. 6. gr. 7 26′ 24″, Anomalia media Sig 8 gr. 29 18′ 43″. ex quâ, juxta Triangulorum ratiocinium, reperitur Æquatio Eccentri abſoluta, gr. 5 28′ 43″ addenda, erit itaque locus ♃ eccentricus Sig. 3 gr. 12 13′ 50″, in Eclipticâ verò Sig. 3 gr. 12 13′ 44″. Deindè ex loco Solis Sig. 10 gr. 4 27′ 8″, aufero locum ♃ modò acquiſitum, & relinquitur Anomalia Orbis annui Sig. 6 gr. 22 13′ 24″.

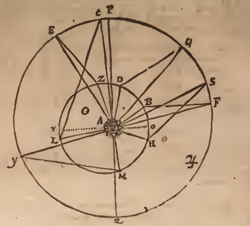
In Schemate appoſito ſit P Y F G orbis Jovis, Z L M B Orbis Terræ annuus, A Sol, B locus Terræ, & F locus ♃ in Orbitâ.

In Triangulo A B F obliquangulo, dantur bina latera A F 522497. A B 98437, cum angulo ab iiſdem comprehenſo B A F, gr. 22 13′ 24″, ergò innoteſcent anguli A B F gr. 152 50′ 38″. A F B gr. 4 55′ 58″, cum latere B F 432976. Si autem ſubtrahatur *Parallaxis Orbis annui* gr. 4 55′ 58″, è loco ♃ à ☉ in Eclipticâ, Sig. 3. gr 12 14′ 50″, relinquit verum ♃ locum à Terrâ, in gr. 7 17′ 46″ ♋, qui Obſervationi *Tychonicæ* omnino conſentit.

2. Anno Salvatoris noſtri 1591, die 14 *Aprilis*, hor. 11 P. M. viſus Obſervat. T.
eſt *Jupiter Uraniburgi* in gr. 14 16′ ♏, cum latitudine boreâ, gr. B. Anno 1591.
1 23′.

Ad hoc tempus, computatus eſt verus Solis locus in gr. 4 7′ 9″ ♉, & diſtantia ⊖ à ☉, 100836.

Medius motus Jovis tunc fuit Sig. 7 gr. 15 41′ 46″. Aphel. Sig. 6 gr. 7 32′ 5″. Anomalia Sig. 1 gr. 8 9′ 41″, *Proſthaphæreſis Eccentri* abſoluta, gr. 3 14′ 59″, ſubtrahenda, locus ergò ♃ ex ☉ erat in gr. 12 26′ 47″, & quo- Fig. 3.
niam Anomalia latitudinis eſt gr. 125 32′ 53″, erit Reductio 0′ 27″. addenda, locus igitùr ♃ ex Sole in Eclipticâ erit in gr. 12 27′ 14″ ♏, qui ablatus ex vero Solis loco, relinquit Anomaliam Orbis annui Sig. 5 gr. 21 39′ 55″, ergò habetur angulus Z A E gr. 8 20′ 5″.



Sit igitùr in Figurâ appoſitâ, ♃ in E, Terra in Z, & Sol in A. In Triangulo itaque Z E A, quoniam duo latera angulum datum ad A comprehendentia conceduntur, nempè A E diſtantia ♃ à Sole 541563. A Z diſtantia Terræ à Sole 100836, inveniuntur itaque ex hiſce, anguli A Z E gr. 169 46′ 12″. Z E A gr. 1 53′ 42″, ideo hæc Orbis Parallaxis Z E A gr. 1 53′ 42″, adjicienda eſt vero loco ♃ à Sole, ut exiſtat verus locus ♃ à Terrâ in gr. 14 20′ 56″ ♍, obſervationi proximè conſentiens.

Ad hæc in eodem Triangulo, ex angulis A Z E gr. 169 46′ 12″, Z A E gr. 8 20′ 5″, & latere A E 541563, habetur latus Z E part. 442017, & totidem eſt diſtantia ♃ à Terrâ.

Obſervat. T. B. anno 1600. 3. Anno Chriſti 1600, die 5 *Martii*, hor. 10, ex altitudine ♃ meridianâ accepit *nobilis Tycho* declinationem ♃ ſeptentrionalem gr. 18 10′, & ex altitudine quoque meridianâ indagavit Cordis ♌ declinationem gr. 13 53′ 46″ boreum, & Aſcenſionem Rectam Cordis ♌ gr. 11 44′, & angulum differentiæ Aſcenſionalis gr. 11 22′ 35″. Eodem prorſus modo, invenit declinationem lucidæ in pede ♊ gr. 39 47′, & angulum differentiæ Aſcenſionalis utriuſq; gr. 41 45′ 15″, ex quibus invenitur Aſcenſio ♃ recta gr. 135 21′ 56″. Datâ jam Declinatione & Aſcenſione ♃ rectâ, datur per *Probl.* 2. *Cap.* 2. *Libri* 3. longitudo ♃ in gr. 12 34′ ♌, & latitudo ejus borea gr. 1 6′ $\frac{3}{4}$.

Verus locus *Solis* fuit tunc temporis in gr. 25 40′ 43″ ♓, & diſtantia Terræ à Sole 99665.

Medius motus ♃ Sig. 4 gr. 15 41′ 47″. Aphel. Sig. 6 gr. 7 44′ 1″. Anomalia media Sig. 10 gr. 7 57′ 46″, Æquatio abſoluta gr. 4 10′ 55″ addenda, locus ergò ♃ ex Sole in Orbitâ in gr. 19 52′ 42″ ♌, in Eclipticâ in gr. 19 52′ 13″, quo ablato ex loco Solis vero Sig. 11 gr. 25 40′ 43″, relinquitur Anomalia Orbis annui Sig. 7 5 48′ 30″. In Obſervatione iſtâ eſt ♃ in G, *Terra* in D, *Sol* in puncto fixo A. Hiſce expoſitis, dantur in Triangulo A D G, latera duo A G 537600. A D 99665, cum angulo indidem comprehenſo D A G gr. 35 48′ 30″ (quoniam exceſſus eſt Anomaliæ Orbis ſupra Semicirculum gr. 180.) datur ergò angulus D G A gr. 7 16′ 30″, qui ablatus ex loco vero ♃ à Sole Sig. 4 gr. 19 52′ 13″, relinquit verum locum ♃ in gr. 12 35′ 43″ ♌, omnibus ferè modis ut *Tycho* obſervavit.

4. Anno

4. Anno 1637. *Julii* die 6, Hor. 9, *Loduni Galliæ* videbatur ♃ à Clariſs. Obſervatio
Bullialdo, per tubum applicare Stellæ, quæ eſt V I. Aſteriſmi ♍, & præce- *Bullialdi* anno
dens quatuor quæ ſunt in alâ ſiniſtrâ ♍; erat diſtantia ♃ & Stellæ, 12′ cir- 1637.
citèr, ſed, quàm illa, inferior 8′ vel 9′, occidentalior verò 7′, quare numeravit ♃ diſtare à Stella, penes Longitudinem 10′ vel 11′ in antecedentia, locus Stellæ tunc fuerat in gr. 29 40′ 24″ ♍, ergò erat ♃ in gr. 29 35′ ♍, cum latitudine boreâ gr. 1 18′.

Locus verus *Solis* tunc fuit in gr. 24 17′ 23″ ♋, & diſtantia *Terræ à Sole* 101707.

Motus medius Jovis erat Sig. 6 gr. 9 19′ 46″. Aphelium Sig. 6 gr. 8 34′ 4″, ergò Anomalia Sig. 0. gr. 0 45′ 42″, hinc emergit Æquatio Eccentri gr. 0 4′ 9″ ſubtr. & diſtantia ♃ à Sole 546556, locus igitùr ♃ à ☉ in gr. 9 15′ 37 ♎. Diſtantia à Nodo auſtrino gr. 87 48′ 17″. Reductio add. 0′ 3″. Locus ♃ reductus ad Eclipticam in gr. 9 15′ 40″ ♎, qui ablatus à loco Solis vero, oſtendit Anomaliam Orbis, Sig. 9 gr. 15 1′ 43″.

In Triangulo C A L (in quo ſit C locus ♃, A Solis, & L Terræ) quoniam dantur A C diſtantia ♃ à ☉ curtata 546401, A L diſtantia ⊖ à ☉, 101707. cum angulo C A L gr. 105 1′ 43″, idcircò per doctrinam Triangulorum ſupra traditam dabitur angulus A L C gr. 65 14′ 23″, A C L gr. 9 43′ 53″, qui eſt Parallaxis Orbis annui; ſubtrahenda autem eſt hæc Parallaxis à loco ♃ à Sole ad Eclipticam reducto gr. 9 15 40 ♎, & manebit locus ♃ à Terrâ, in gr. 29 31′ 47″ ♍, inſenſibilitèr ab obſervatione diſſentiens.

5. Anno Chriſti 1593. *Septembris* die 28. horis à meridie 8. obſervavit Obſervat. T.
Tycho Brahæus Uraniburgi, ♃ in gr. 13 56 ♑, cum latitudine auſtrina B. Anno 1593.
gr. 0 25′.

Quo tempore computatus eſt verus Solis locus in gr. 15 17′ 17″ ♎, diſtantia Terræ à Sole 99675.

Medius motus ♃ Sig. 10. gr. 0 20′ 8″. Aphelium Sig. 6 gr. 7 35′ 23″, Nodus Boreus Sig. 3. gr. 5 36′ 0″. Anomalia Sig. 3. gr. 22 44′ 45″, Angulus ad Solem gr. 107 35′ 13″, hinc emergit Æquatio Eccentri abſoluta gr. 5 9′ 32″, quæ ex loco ♃ medio ablata, relinquit locum ♃ eccentricum Sig. 9 gr. 25 10′ 36″, ergò Argumentum latitudinis erit Sig. 6 gr. 18 16′ 10″, ex quibus invenitur Reductio 0′ 18″. Et quia ♃ diſcedit à Nodo auſtrino ad limitem maximæ deviationis, auferenda eſt *Reductio* à loco ♃ eccentrico præinvento, & locus ♃ ad *Eclipticam* reductus erit in gr. 25 18′ 18″ ♑. Deinde auferatur hic locus ♃ ex Sole, à loco Solis vero, & numerus reſiduus eſt Anomalia Orbis annui Sig. 8. gr. 20 46′ 59″. Eſto in iſtâ Obſervatione, Terra in M. *Jupiter* in Y, & Sol in A. Sitq: A M diſtantia *Terræ à Sole*, A Y diſtantia ♃ à Sole, & angulus M A Y exceſſus Anomaliæ Orbis ſupra Semicirculum gr. 80 46′ 59″. Itaque in Orthogonio M A Y, dantur duo latera A Y 512970. A M 99675, cum angulo M A Y gr. 80 46′ 59″, modò acquiſito, ergò dabitur angulus A M Y, gr. 88 1′ 8″, & angulus A Y M gr. 11 11′ 51″. Detrahatur autem hic angulus ex loco ♃ à ☉ in Eclipticâ Sig. 9 gr. 25 10′ 18″, & reſiduus eſt verus ♃ locus, ut viſus eſt à *Terrâ*, gr. 13 58 27 ♑, qui Obſervationi proximè convenit.

Denique in eodem Triangulo A Y M, ex angulis A M Y gr. 88 1′ 8″, Y A M gr. 80 46′ 59″, & latere A Y 512970, datum eſt latus M Y 506650. quod eſt intervallum *Jovis & Terræ*.

6. Anno Chriſti 1634. die 4 *Decembris* (Stylo Novo) Hor. 10 P. M. *Lo-* Obſervatio
duni Galliæ, obſervata eſt Stella Jovis à *D. Bullialdo* diſtare ab Aſello au- *Bullialdi* anno
ſtrino, verſus boream & Polum Zodiaci 17′ vel 18′, erat ♃ in Azimutho 1634.
paulo orientaliori & *Almicantharat* altiori, inde judicavit ♃ tunc obtinuiſſe eandem cum ſtellâ Longitudinem, quæ eſt in gr. 3. 36 ♌, & latitudinem habere boream 0 24′.

Ad hoc tempus, fuit longitudo *Solis* vera in gr. 12 51′ 7″ ♐, diſtantia Terræ à Sole 98363.

Medius motus ♃ erat Sig. 3. gr. 19 56′ 40″. Aphel. Sig. 6. gr. 8 30′ 34″ Nodus Boreus Sig. 3. gr. 7 5′ 20″. Anomalia media Sig. 9 gr. 11 26′ 6″. Æquatio igitur Eccentri gr. 5 18′ 41″, quæ loco ♃ medio addita, conſtat verum ♃ à Sole locum in gr. 25 15′ 21″, ſed ad Eclipticam reductum in gr. 25 15′ 3″ ♋, dabitur ergò Anomalia Orbis annui Sig. 4. gr. 17 36′ 4″.

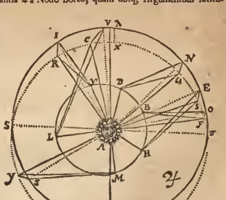
In Triangulo ASH dantur AS 527667. AH 98363, cum angulo comprehenſo HAS gr. 42 23′ 56″, dabitur ergò angulus *Elongationis* AHS gr. 129 18′ 29″. ASH gr. 8 17′ 35″, & HS 459837. Hæc Orbis *Parallaxis* gr. 8 17′ 35″, tandem adjecta loco ♃ ex Sole gr. 25 15′ 3″ ♋, oſtendit locum ♃ à terra verum in gr. 3 32′ 38″ ♌, vix aliter quàm à Doctiſſimo *Bullialdo* obſervatum eſt.

Determinatio Latitudinis ♃ in hiſce ſex Obſervationibus.

Ann. 1587. In primâ *Tychonis* obſervatione 1587. die 14 *Januarii*, obſervata eſt Latitudo Jovis gr. 0 8′.

Sit in Schemate adjuncto, Orbis Terræ annuus LMHD, Orbis Jovis PSWN, Circulus α SZG in eodem plano cum Eclipticâ. Sitq; Nodus Boreus ϖ, auſtrinus S, Limes maximæ inclinationis Orbitæ ab Eclipticâ verſus Boream P α, ad auſtrinam WZ.

Eſto in Obſervatione iſtâ, Sol in A, *Terra* in B, ♃ in O in orbitâ, in F reſpectu *Ecliptica*, erit itaque angulus OBF latitudo ♃ in Terra, & denique ϖ O diſtantia ♃ à Nodo Boreo, quam ubiq; Argumentum latitudinis appellamus.



Theoria latitudinis ♃. Priuſquàm latitudinem hujus Planetæ trademus, demonſtrare nobis propoſitum eſt, quomodo Aſtronomi, *Reductiones, Inclinationes, & Diſtantias curtatas* indagare ſolent.

Primum pro Reductione.

In Triangulo ϖ FO, ad F Rectangulo habentur ϖ O ut prius gr. 5 20′ 51″, & angulus maximæ deviationis F ϖ O gr. 1 21′ 56″, ergò habetur ϖ F gr. 5 20′ 45″, diſtantia ♃ à Nodo Boreo in Eclipticâ, differentia autem arcuum, ϖ F & ϖ O, 0′ 6″, eſt reductio quæſita, quæ ex loco ♃ eccentrico gr. 12 13′ 50″ ♋ ablata, relinquit locum ♃ à ☉ ad Eclipticam reductum gr. 12 13′ 44″ ♋.

2. *Pro Inclinatione & Diſtantiâ Curtatâ.*

In Diagrammate appoſito ſit α λ Inclinatio maxima Orbis ♃ à plano Eclipticæ ut viſa eſt à Sole, quæ ſemper accidit quando Planeta à Nodis removetur

vetur gr. 90. Exindè autem non erit difficile, *Inclinationem*, aliis in partibus Orbis intra Nodum & limitem, comprehenſis, inveſtigare. Ut in hoc Exemplo, ubi in Triangulo Sphærico ♈ F O, dantur ♈ O gr. 5 20′ 51″, & angulus O ♈ F gr. 1 21′ 56″, ergò per analyſin trianguli datur O F, vel angulus O A F gr. 0 7′ 38″, qui menſurat inclinationem Orbis à plano Eclipticæ.

Præterea, in eodem Triangulo A F O, ex angulo A O F gr. 89 52′ 22″, & Hypothenuſâ A O 522498, dabitur A F diſtantia curtata 522497, & ex A O & angulo F A O gr. 0 7′ 38″, invenitur Inclinatio O F 1160. in partibus qualium Radius O A eſt 522498.

Poſtremò, Pro Latitudine ♃ ad Terram inveſtigandâ.

In Triangulo B O F ad F rectangulo, data ſunt latera B F 432976 F O 1160, ergò datur angulus O B F gr. 0 9′ 13″, qui monſtrat latitudinem ♃ in Terrâ, Septentrionalem.

2. In Obſervatione ſecundâ, 1591. die 14 *Aprilis*, Hor. 11. Nobilis ille *Tycho* obſervavit latitudinem ♃ gr. 1 23′ 30″. Boream. Anno 1591.

In Figurâ præcedente ſit Terra in ♈, Sol in A, & ♃ in I inclinatus ad Eclipticam quantitate I R 10503. In Triangulo Rectangulo ♈ R I, dantur ♈ R 442017. R I 10503, ergò dabitur Angulus Latitudinis R ♈ I gr. 1 22′ 13″, omnibus modis ut *Tycho* obſervavit.

3. Anno præmemorato 1600. die 5 *Martii* Hor. 10. Latitudo ♃ obſervata eſt à *Tychone*, gr. 1 6′ 45″. Borea, quo tempore datum eſt Argumentum Latitudinis ♈ N gr. 42 56′ 52″, Et quoniam Inclinatio Maxima λ α eſt 12424. erit Inclinatio N G 8729, qualium Radius A N ponatur 537670. Anno 1600.

In Triangulo D G N, datum eſt, D G 460480. & G N ut priùs 8729, ergò innoteſcit latitudo ♃, N D G gr. 1 5′ 10″,

4. Anno Chriſti 1637. die 6 *Julii*, Hor. 9. obſervavit Doctiſſimus *Iſmael Bullialdus*, Latitudinem ♃ gr. 1 18. ſeptentrionalem. Anno 1637.

Argumentum latitudinis tunc fuerat Sig. 3. gr. 2 11′ 43″, erit Itaq; Angulus Inclinationis ♃ quoad Solem C A V gr. 1 21′ 52″. In Triangulo Igitur Rectangulo A C V, præter angulum C A V, datur A V 546556. ergò habetur Diſtantia curtata A C 546401, & Inclinatio C V 13016. qualium Radius A V ſit 546556.

Denique in Triangulo L C V, datis L C 581137, C V 13016, datur Angulus C L V gr. 1 17′ 0″, & tanta eſt latitudo ♃ in iſtâ Obſervatione.

5. Anno 1593. *Septemb.* die 28 Hor. 8. Latitudo ♃ erat obſervata gr. 0 25′ Auſtrina. Anomalia latitudinis fuit tunc temporis Sig. 6. gr. 18 16′ 10″, diſtantia igitùr à Nodo Auſtrino gr. 18 16′ 10″, ita ut Inclinatio Orbis à plano Eclipticæ S A Y ſit gr. 0 25′ 41″. In Triangulo A S Y datum eſt latus A S 512984. cum angulo A S Y gr. 89 34′ 19″, ergò invenitur Diſtantia curtata A Y, 512970, & Inclinatio S Y 3832. Anno 1593.

Tum in Triangulo M S Y ad S Rectangulo, dantur M Y 512970. S Y 3832. diſpaleſcit ergò angulus S M Y gr. 0 26′ 0″, quamproximè obſervationi *Tychonica* congruens.

6. Anno 1634. die 24. *Novembris* Stylo Anglicano, ſeu 4 *Decembris* Stylo *Gregoriano*, Hor. 10 veſperi, latitudo ♃ inquirenda eſt. Anno 1634.

Anomalia latitudinis fuit tunc temporis Sig. 0 gr. 18 12′ 1″. In Triangulo Itaq; Rectangulo ♈ S E, ex ♈ E gr. 18 12′ 1″, & angulo E ♈ S gr. 1 21′ 56″, dabitur ♈ S gr. 18 11′ 43″, quibus ablatis ex ♈ E, relinquitur o′ 18″ ſubtrahenda. Ex iiſdem quoq; invenitur Deviatio Orbis ab Eclipticâ S E æqualis Angulo E A S gr. 0 25′ 36″; Jam in eodem Trigono A E S, ex datis A E 527683, E A S gr. 0 25′ 36″, reperitur Diſtantia curtata A S 527667, & S E 3928.

Deniq;

Deniq; in Triangulo Rectangulo E H S, dantur S H 459837, E S 3928 ergò habetur Angulus latitudinis ♃ in Terrâ E H S gr. 0 29′ 22″.

CAP. XVI.

De Motibus Stellæ Martis, & primùm de primâ in Ellipſi inæqualitate.

De Marte. ANno Chriſti 1580. die 18 *Novembris*, horis à meridie 1 30′, *Vraniburgi*, obſervata eſt Stella *Martis* in gr. 6 27′ 30″ ♊, in oppoſito Solis loco.

Huic tempori correſpondent hi motus:	S.	gr.	′	″.
Longitudo Martis media ab Æquinoctio verno	1	25	53	0.
Aphelium	4	28	32	36.
Nodus Boreus	1	16	28	53.
Anomalia media	8	27	20	24.

Hiſce ita conceſſis proximè methodum hanc novam hactenus manditam, quâ exquiſitè prima *Martis* inæqualitas in Ellipſi, & deinde locus ejus à Sole verus, exaretur, proponemus.

Calculi Geometrici forma in Longit. Martis. Primùm itaq; deſcribatur Circulus P Q H P, in quo numeretur Anomalia media à P per Q in H. gr. 267 20′ 24″, cujus exceſſus ſupra Semicirculum gr. 87 20′ 24″, erit Angulus D X H. Quoniam jam in Triangulo D X H, dantur duo latera D H 152040. D X 14115, cum angulo D X H gr. 87 20′ 24″, ergò dabitur Angulus X H D gr. 5 19′ 16″, & angulus X D H gr. 87 20′ 20″, cujus Complementum ad duos rectos gr. 92 39′ 40″, eſt Anomalia Æquata à Perihelio Q D H, quâ duplicatâ, emergit Anomalia Variationis gr. 185 19′ 20″.

Jam porrò ſi Radius Circelli Variationis ſtatuatur 14′ 55″, erit Variatio Anomaliæ datæ reſpondens S H 1′ 22″, ſubtrahe autem H S 1′ 22″, ab angulo Q D H gr. 92 39′ 40″, & relinquitur Angulus Q D S gr. 92 38′ 17″.

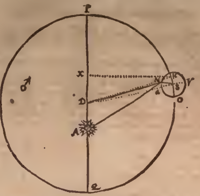
In Diagrammate adjuncto ſit S centrum Epicycli, X Focus medii motûs, A Sol & Focus alter, ad quem veri motus reſpiciunt, D centrum Ellipſeωs, & N locus *Martis* in Ellipſi.

Primùm in peripheriâ Epicycli numeretur Anomalia ipſius à V per α in N gr. 185 16′ 34″, dupla ſcilicet anguli Q D S, erit igitùr Angulus α S N gr. 5 16′ 34″.

Theoria ♂. In Triangulo D N S, è datis lateribus D S 152040, S N 327, & angulo ab iiſdem comprehenſo N S D, gr. 5 16′ 34″, inveniuntur reliqui anguli D N S gr. 174 42′ 46″, S D N 0′ 41″, cum latere D N 151713. Addatur autem angulus S D N 0′ 41″, angulo A D S nuper invento, gr. 92 38′ 17″, & conflatur angulus A D N gr. 92 38′ 58″.

Dein in Triangulo A D N quoniam habentur latera D N 151713, D A 14115, & angulus A D N gr. 92 38′ 58″. ergò invenitur Angulus ad Solem D A N gr. 82 3′ 48″, Proinde quando hic angulus ex Complemento Anomaliæ mediæ auferatur, reſultat *Æquatio Eccentri Martis* vera & abſoluta gr. 10 35′ 48″, quæ medio loco *Martis* eccentrico addita, oſtendit longitudinem *Martis* Heliocentricam in gr. 6 28′ 48″ ♊. In Trigono eodem, quoniam jam cogniti ſunt Anguli A D N gr. 92 38′ 58″, D A N gr. 82 3′ 48″, cum latere D N 151713, dabitur latus A N 153017.

Poſtremò,



Poſtremò, ut habeatur *Reductio*, ſubtrahendus eſt motus Nodi Borei, Sig. 1 gr. 16 28′ 53″; ab Helliocentrico loco *Martis* ſic invento, & relinquit Argumentum latitudinis Sig. 0 gr. 19 59′ 55″, ex quibus invenitur *Reductio* 0′ 35″, ſubtrahenda, & Diſtantia curtata 153009. ut infra in inveſtigandâ *Martis* Inæqualitate ſecundâ enodatè demonſtrabimus.

		S.	gr.	′	″.
Locus Martis Heliocentricus		2	6	28	48.
Reductio	*Subtr.*			0	35.
Locus Martis Heliocent. ad Eclipticam reductus		2	6	28	13.

Differt itaq; hic Calculus ab Obſervatione cœlitùs factâ tantummodò 0′ 43″.

Synopſis tredecim aliorum locorum Martis, *tàm ex Obſervatione Acronychiâ in verâ* Solis *oppoſitione, quam Calculo ad eadem tempora, juxta* Aſtronomiam Britannicam.

Tredecim aliæ fulſiones ♂ Acronychiæ.

Ecce mirabilis conſenſus Calculi cum obſervationibus.

Tempus Uraniburgi					Long. obſer.				Longit. media.				Ano. Med.				Longit. Supp.				Dif.	
Anni	Men.	D.	H.	M.	Sig.	Gr.	′	″	S.	gr.	′	″	S.	gr.	′	″	S.	gr.	′	″	′	″
1582.	Dec.	28	4	0	♋	16	54	30	3	9	28	19	10	10	53	8	♋	16	53	46	0	44 −
1585.	Jan.	30	19	15	♌	21	35	10	4	20	11	41	11	21	34	0	♌	21	35	41	0	31 +
1587.	Mart.	6	7	20	♍	25	42	0	5	0	50	53	1	2	10	38	♍	25	43	7	1	7 +
1589.	April	14	6	20	♏	4	23	0	7	14	21	37	2	15	38	48	♏	4	25	26	2	26 +
1591.	Jun.	8	7	45	♐	26	42	0	9	5	47	10	4	7	1	44	♐	26	41	38	0	22 −
1593.	Aug.	25	17	30	♓	12	16	0	11	9	58	18	6	11	10	12	♓	12	18	11	2	11 +
1595.	Oct.	31	0	40	♉	17	30	40	1	7	17	17	8	8	26	32	♉	17	32	32	1	52 +
1597.	Dec.	13	16	0	♋	2	27	0	2	23	15	10	9	24	21	49	♋	2	25	29	1	31 −
1600.	Jan.	18	14	0	♌	8	37	0	4	4	38	49	11	5	42	56	♌	8	35	26	1	34 −
1602.	Febr.	20	14	15	♍	12	26	0	5	15	2	30	0	16	4	5	♍	12	24	32	1	28 −
1604.	Mart.	28	16	20	♎	18	36	10	6	27	2	56	1	28	1	58	♎	18	36	30	0	20 +
1608.	Julii.	24	2	0	♒	11	10	0	10	14	14	33	5	15	8	20	♒	11	10	28	0	28 +
1610.	Oct.	8	16	50	♈	25	30	0	0	16	58	17	7	17	49	7	♈	25	28	37	1	23 −

De Motibus Stellæ Martis *extra ſitum Acronychium.*

Obſerv. T. B. 1589. Anno Chriſti 1589. die 8 *Martii*, horis à meridie 16 24′ *Uraniburgi*, Nobilis ille *Tycho* obſervavit *Martem* in gr. 12 16 ♏, cum latitudine boreâ gr. 2 4′.

Locus Solis à Terrâ verus tunc fuit in gr. 28 35′ 7″ ♓, & Diſtantia Terræ à Sole *99759*.

Medius motus *Martis* erat Sig. 6 gr. 25 11′ 21″, Aphelium Sig. 4. gr. 28 42′ 42″. Nodus Boreus Sig. 1 gr. 16 34′ 55″, & Anomalia media Sig. 1. gr. 26 28′ 39″, Ex hiſce ita datis, dabitur Angulus ad Solem gr. 48 11′ 24″, jam ſi detrahatur hic angulus ab Anomaliâ mediâ gr. 56 28′ 39″, relinquitur *Æquatio abſoluta* gr. 8 17′ 15″, auferenda è longitudine mediâ, ut in Synopſi videatur.

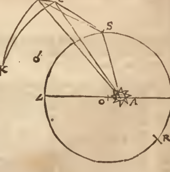
	S.	gr.	′	″.
Locus Martis medius	6	25	11	21.
Æquatio Subtr.		8	17	15.
Locus Martis Heliocentricus	6	16	54	6.

De Reductione loci ♂ ad Eclipticam:

Subducatur primùm motus Nodi-Borei Martis, Sig. 1 gr. 16 34′ 55″ à loco Martis Heliocentrico, Sig. 6. gr. 16 54′ 6″, & relinquitur Argumentum latitudinis Sig. 5 gr. 0 19′ 11″, ac proinde ipſius Complementum KL gr. 29 40′ 49″.

In Triangulo Sphærico KLX ad X Rectangulo, dantur KL gr. 29 40′ 49″, & XKL gr. 1 51′ 4″, dabitur ergò XK gr. 29 40′ 3″, locus itaq; Martis in Eclipticâ erit Sig. 6. gr. 16 54′ 52″, ut apparet ex Sole.

De Inclinatione Orbis Inquirendâ.



In Diagrammate adjuncto repræſentat K Nodum Auſtrinum, L locum *Martis* in Orbitâ, X locum in Eclipticâ, & LX inclinationem quæſitam. Dico, Ut Radius gr. 90. ad inclinationem maximam 4912. ita Sinus KL gr. 29 40′ 49″, ad Inclinationem quæſitam 2432. quæ quidem eſt Deviationis menſura communi Radio 152040. competens, ſed qualium AL pro Radio habetur, erit Deviatio LX 2575.

Fig. 2.

In Triangulo Sphærico ALX Rectangulo ad X, datâ Hypothenuſâ AL 161004, una cum latere LX 2575, quæritur Diſtantia curtata, AX hoc modo.

AL 161004.	Summa	163579.	....	5. 213727.
LX 2575.	Different.	158429.	....	5. 199830.
		Aggreg.	....	10. 413557.
AX 160982.	....	Semiaggreg.	...	5. 206778.

Locus

		S.	gr.	′	″.
Locus Solis verus		11	28	35	7.
Locus Martis Heliocentric.	Subtr.	6	16	54	52.
Anomalia Orbis		5	11	40	15.

In eodem Diagrammate numeretur Anomalia Orbis ab R per P ad S. gr. 161 40′ 15″, eritq; Angulus S A X gr. 18′ 19′ 45″.

In Triangulo Obliquangulo A S X, datis duobus lateribus A X 160982. A S 99759. cum Angulo comprehenſo X A S gr. 18 19′ 45″, habentur anguli A S X gr. 136 20′ 33″, S X A gr. 25 19′ 41″, & deniq; latus S X 73333.

	S.	gr.	′	″.
Locus Martis Heliocentricus	6	16	54	52.
Parallaxis Orbis annui ad.		25	19	41.
Locus Martis Geocentricus.	7	12	14	33.

Vix differt ab obſervatione.

Determinatio latitudinis Martis *in iſtâ Obſervatione* Tychonicâ.

SIt in eodem Diagrammate, Angulus inclinationis ad Solem L A X, & Angulus latitudinis in Terra L S X; quapropter in Orthogonio L S X, dantur S X 73333. L X 2575. ergò reperitur Angulus latitudinis L S X gr. 2 0′ 41″.

Doctiſſimus & ingenioſiſſimus vir *Sethus Wardus*, S T D. *Lib.* 1. *Part.* 2. Cap. 11. *Aſtron. Terreſt.* nobis commodiſſimam propoſuit viam, quâ Planetarum Latitudines facilè, aliquo tempore dato, inveniantur, cujus Demonſtratio, quanquam hic omiſſa, proportio attamen erit ita.

1. *Ut Diſtantia Planetæ à Terrâ S X, ad ipſius Diſtantiam à Sole A X, ita ſinus Inclinationis L A X, ad ſinum Latitudinis;* Erit etiam è converſo;
2. *Ut Sinus anguli Elongationis, ad ſinum Anguli Anomaliæ Orbis, ita Cotangens Inclinationis, ad Cotangentem Latitudinis.*

Synopſis quindecim aliarum Obſervationum veri loci Martis, *extra ſitum Acronychium.*

1. ANno Chriſti 1582. die 23 *Novembris*, Horis à Meridie 16 0′, Nobilis vir *Tycho Brabeus* obſervavit *Uraniburgi*, Stellam Martis in gr. 26 38′ 30″ ♋, cum latitudine boreâ gr. 2 49′. Obſervat. T. B. 1582.

Quo tempore verus locus Solis erat in gr. 11 40′ 36″ ♐, & Diſtantia Terræ à Sole 98366.

Medius motus *Martis* ab Æquinoctio verno tunc fuit Sig. 2 gr. 21 23′ 39″, Anomalia media, Sig. 9. gr. 22 48′ 25″, Æquatio abſoluta gr. 9 19′ 13″. addenda, locus igitur Martis Heliocentricus juxta Doctrinam Triangulorum ſupra traditam, erat Sig. 3. gr. 0. 42′ 42″, in Eclipticâ Sig. 3. gr. 0 41′ 49″, hinc provenit Anomalia Orbis Annui Sig. 5. gr. 10 58′ 57″.

In Triangulo A a G obliquangulo, dantur duo latera, A a Diſtantia ♂ à ☉ 158847, A G Diſtantia Terræ à Sole 98366, cum angulo à lateribus comprehenſo a A G gr. 19 1′ 3″, (qui eſt Complementum Anomaliæ Orbis annui ad duos rectos) innoteſcit igitur Angulus Elongationis ♂ à ☉ a G A gr. 135 1′ 37″, & angulus Parallaxeos Orbis annui in *Marte* gr. 25 57′ 19″, Quocirca ſi addatur hic Angulus ad locum *Martis* heliocentricum, Sig. 3. gr. 0 41′ 49″, prodibit vera *Martis* Longitudo quoad *Terram*,

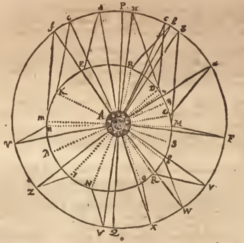
Sig. 3. gr. 26 39′ 8″, erat igitur Stella *Martis* in gr. 26 39′ 8″ ♋, qui Obſervationi *Tychonicæ* proximè conſentit.

Obſervat. T. B. 1583.

2. Anno Salvatoris noſtri 1583. die 26 *Januarii*, Hor. 6 15′ veſperi. *Tycho* animadvertit *Uraniburgi*, *Martem* in gr. 8 20′ ♋, cum latitudine boreâ, gr. 3 52′.

Quo tempore Sol erat in gr. 16 32′ 8″ ♒, Medius motus *Martis* Sig. 3. gr. 24 43′ 9″, Anomalia media Sig. 10. gr. 26 7′ 53″, ex quibus ſecundum praxin Triangulorum præmemoratam, inveſtigatur verus locus *Martis* ex Sole in Ellipſi, Sig. 4. gr. 0 6′ 36″, à quo ſi auferatur Reductio 0′ 31″, remanet locus *Martis* Heliocentricus ad Eclipticam reductus Sig. 4. gr. 0 6′ 5″, oritur itaq; Anomalia Orbis Sig. 6 gr. 16 26′ 3″, Et quoniam Diſtantia ♂ à ☉ curtata eſt 164369, & Diſtantia Terræ à Sole 98648. idcircò in Triangulo A b B habemus duo latera A b 164369, A B 98648, cum angulo ab iis comprehenſo B A b gr. 16 26′ 3″, ergò inveniuntur Anguli B b A gr. 21 48′ 27″, A B b gr. 141 45′ 28″, & latus B b 75126. Jam è loco *Martis* ex Sole, Si auferas Parallaxin Orbis annui in *Marte*, relinquitur Geocentricus locus ♂ in gr. 8 17′ 38″ ♋, obſervationi *Tychonicæ* adamuſſim conſentiens.

Fig. 3.



Obſervat. T. B. 1584.

3. Anno Chriſti 1584. die 21 *Decembris*, Hor. 14. *Tycho Brahæus* denuò obſervavit Stellam *Martis* in gr. 1 13′ 30″ ♍, cum latitudine boreâ gr. 3 31′.

Ad hoc tempus verus locus Solis fuit in gr. 10 43′ 1″ ♑, Diſtantia Terræ à Sole 98228.

Medius motus *Martis* erat Sig. 3. gr. 29 7′ 1″, Aphel. Sig. 4 gr. 28 37′ 34″, Nodus Boreus Sig. 1 gr. 31 51″, Anomalia Sig. 11 gr. 0 29′ 27″, locus igitur *Martis* à Sole in Eclipticâ erit in gr. 3 51 24. Leonis, & diſtantia ejus à Sole curtata 164851. Dein ſubtrahatur locus ♂ ita inventus è loco Solis vero, & relinquitur Anomalia Orbis annui Sig. 5. 6. 51′ 37″, quibus è Semicirculo ablatis manebit Angulus C A D gr. 23 8′ 23″. in Triangulo C A D è lateribus A C 164851. A D 98228, & angulo

indidem

indidem comprehenſo C A D, gr. 23 8′ 23″, habentur anguli A D C gr. 128 28′ 39″, A C D gr. 27 22′ 57″, Jam ſi loco Martis à Sole præinvento, addatur hæc Orbis annui Parallaxis gr. 27 22′ 57″, proveniet locus *Martis* Geocentricus in gr. 1 14′ 21″ ♍, qui obſervationi adamuſſim congruit.

4. Anno Chriſti 1585. die 12 *Martii*, Ho. 10 30′. *Uraniburgi*, obſervatus eſt *Mars* in gr. 11 46′ ♌, cum latitudine boreâ gr. 3 22′. Obſervat. T B. 1585.

Verus locus Solis tunc fuit in gr. 2 16′ 4″ ♈, Diſtantia Terræ à Sole 99876, Medius motus *Martis* Sig. 5. gr. 11 29′ 25″, Anomalia Sig. 0. gr. 12 51′ 35″, Proſthaphæreſis gr. 2 7′ 24″, auferenda, locus ergò ♂ ☉ apparuit in gr. 9 22′ 40″ ♍, ideoq; angulus Anomaliæ Orbis est gr. 22 53″ 24″.

Ergò in Triangulo A d E, habemus duo latera A d 166109 A E 99876, & Angulum ab iis comprehenſum d A E gr. 22 53′ 24″, idcircò datur angulus Elongationis A E d gr. 129 26′ 34″, & angulus Parallaxeos Orbis A d E gr. 27 40′ 2″, qui ablatus ex loco præinvento Sig. 5. gr. 9 22′ 40″, relinquit locum *Martis* Geocentricum in gr. 11 42′ 38″ ♌, qui obſervationi quamproximè convenit.

5. Eodem quoq; anno 1585. die 15 *Aprilis* hor. 10. Veſperi, Nobilis vir *Tycho Brabæus*, mirâ Solertiâ & Sagacitate, *Martem* deprehendit in gr. 17 37′ 30″ ♌. Obſervat. T. B. 1585.

Erat tunc Sol vero motu ſuo in gr. 5 29′ 10″ ♉, diſtans à Terrâ 100878

Medius motus *Martis* tunc fuit Sig. 5 gr. 29 17′ 52″, Anomalia Sig. 1. gr. 0 39′ 55″, ex quibus reperitur locus *Martis* Heliocentricus ad Eclipticam reductus, in gr 24 23′ 34″ ♍, & Diſtantia curtata 164757. Ex locis ♂ & ☉ ſic inventis, elicitur Complementum Anomaliæ Orbis Sig 4 gr. 18 54′ 24″, quod ablatum de Semicirculo gr. 180. relinquit Angulum C A K gr. 41 5′ 36″.

In Triangulo A C K, quoniam cognita ſunt latera A C 164757. A K 100878, cum angulo comprehenſo c A K gr. 45 5′ 36″, ergò datus eſt angulus A c K gr. 36 46′ 10″, & latus K c 110769. Sublato autem hoc angulo A c K ex loco *Martis* à Sole, relinquitur verus *locus ♂ Geocentricus* in gr. 17 37′ 24″ ♌, obſervationi *Tychonicæ* exactè conſentiens.

6. Denuò, hoc anno præmemorato 1585. die 9. *Maii*, Hor. 18 11′, *Tycho* obſervavit *Martem* in gr. 26 54′ 30″ ♌, quo tempore Sol juxta noſtrum calculum tenebat gr. 28 55′ 24″ ♉, in diſtantia ejus à Terra 101433. Obſervat. T. B. 1585.

Medius motus Martis erat Sig. 6. gr. 12 3′ 15″, Anomalia Sig. 1 gr. 13 25′ 13″, locus igitur ♂ ex ☉ reperitur in gr. 5 20′ 18″ ♎, reſpectu autem Eclipticæ in gr. 5 21 10. ejuſdem Signi, in diſtantia à Sole 163143. Porrò ex loco Solis prius oblato, ſubtrahendus eſt locus *Martis*, & relinquitur Anomalia Orbis Sig. 7. gr. 23 34′ 14″, cujus exceſſus ſupra Semicirculum gr. 53 34′ 14″, menſurat angulum m A f.

In Triangulo A m f, datis A f 163143. A m 101433. lateribus, cum angulo incluſo f A m gr. 53 34′ 14″, dabitur etiam Angulus Elongationis A m f gr. 88 0′ 48″, & Parallaxis Orbis annui in *Marte* A f m gr. 38 24′ 58″, ita ut locus ♂ cadat ex Terrâ in gr. 26 56′ 12″ ♌, obſervationi *Tychonicæ* congruens.

7. Anno Chriſti 1586. die 21 *Octobris*, Hor. 18 0′, obſervatus eſt locus ♂ ab illo Atlante ſeculi ſuperioris, *Tychone Brahæo* in gr. 0 7′ ♍, cum latitudine boreâ gr. 1 36′. Obſervat. T. B. 1586.

Locus Solis verus fuit tunc temporis in gr. 8 21′ 56″ ♏, in diſtantia ejus à Terrâ 99015.

Martis motus medius erat Sig. 3. gr. 19 48′ 26″. Aphel. Sig. 4. gr. 28

 39′

39′ 47″, Anomalia Sig. 10. gr. 21 8′ 39″. Nodus Bor. Sig. 1 gr. 16 33′ 10″, unde elicitur locus *Martis* à *Sole* ad Eclipticam reductus in gr. 25 53′ 43′, & diſtantia ♂ à ☉ curtata 163745.

Quoniam in Triangulo A S g, habentur duo latera A g 163745. A S 99015, cum angulo g A S gr. 77 31′ 47″, (qui eſt Complementum Anomaliæ Orbis ad gr. 180.) dabitur ergò angulus A S g gr. 68 17′ 23″, & angulus A g S, gr. 34 10′ 49″, cum latere S g 172089. Si igitùr motui Martis ex Sole in Ecliptica, addatur hic angulus Parallaxis Orbis annui A g S, prodibit longitudo *Martis* ex *Terrâ* in gr. 0 4′ 32″ ♍, obſervationi proximè conſentiens.

Obſervat. T. B. 1586.

8. Eodem anno 1586. die 15 *Decembris*, Hor. 18 30′. Nobilis *Tycho Brahæus* obſervavit *Martem Vraniburgi* in gr. 26 6′ 24″ ♍.

Quo tempore verus Solis locus erat in gr. 4 16′ 39″ ♑, & diſtantia Terræ à Sole 98220, Martis medius motus Sig. 4. gr. 18 38′ 32″, Anomalia Sig. 11. 19 gr. 58′ 33″, Mars ergò ex Sole apparebat in gr. 20 18′ 11′ ♌, diſtantia ♂ à ☉ exiſtente 166213. Poſtremò ex locis ♂ & ☉ invenitur Anomalia Orbis Sig. 4. gr. 13 58′ 28″, cujus Complementum ad 6. Signa, gr. 46 1′ 32″, eſt angulus ϖ A ♊.

In Triangulo igitùr obliquangulo ϖ A ♊ dantur latera A ♊ 166213, A ϖ 98220. cum angulo comprehenſo ♊ A ϖ gr. 46 1′ 32″, ergò datur Parallaxis Orbis Telluris A ♊ ϖ gr. 35 47′ 51″. Adde hanc ad locum ♂ Heliocentricum, gr. 20 18′ 11″ ♌, & habebis locum verum ♂ ex Terrâ in gr. 26 6′ 2″ ♍, Calculus itaq; noſter cum obſervatione adamuſſim congruit.

Obſervat. T. B. 1591.

9. Anno Chriſti 1591. die 13 *Maii*, Hor. 14. *Tycho Brahæus* obſervavit *Martem* in gr. 2 20′ ♑, quo tempore, verus locus Solis fuit in gr. 2 9′ 16″ ♊, & Diſtantia Terræ à Sole 101490.

Medius motus Martis erat Sig. 8 gr. 22 17′ 47″, Anomalia Sig. 3. gr. 23 32′ 26″. Proſthaphæreſis gr. 10 8′ 55″ ſubtrahenda, locus ergò *Martis* ex *Sole* oſtenditur in gr. 12 8′ 52″ ♐, in Eclipticâ autem in gr. 12 8′ 9″ ♐, unde Angulus Anomaliæ Orbis reperitur gr. 9 58′ 53″, quo dato, cum lateribus A ♈ 147874. & A H 101490, innoteſcit Angulus Elongationis A H ♈ gr. 149 51′ 36″, & Angulus Parallaxeos Orbis Telluris A ♈ H gr. 20 9′ 30″, ideoq; verus locus ♂ Geocentricus fit in gr. 2 17′ 39″ ♑, obſervationi proximè conſentiens.

Obſervat. T. B. 1591.

10. Eodem quoq; anno 1591. die 28 *Junii*, Hor. 10 24′ *Vraniburgi*, obſervatus eſt *Mars* in gr. 21 10′ ♐, quo tempore verus locus Solis erat in gr. 15 51′ 19″ ♋, & Diſtantia Terræ à Sole 101767.

Medius locus *Martis* tunc tenebat gr. 16 19′ 31″ ♑, ſed viſus à Sole in Eclipticâ gr. 8 30′ 7″ ♑, quocirca ſi è loco Solis vero ſubtrahatur locus Martis ex Sole verus, remanet angulus Anomaliæ Orbis annui gr. 7 21′ 12″.

In Triangulo A Z L dantur bina latera A Z 142569, A L 101767, unà cum angulo ab iiſdem comprehenſo gr. Z A L gr. 7 21′ 12″, idcircò juxta Triangulorum analyſin, inveniuntur anguli A L Z gr. 155 16′ 36″, A Z L gr. 17 22′ 12″. cum latere Z L 43628. Ablato autem angulo A Z L ex loco *Martis* ex *Sole*, relinquitur locus ♂ Geocentricus in gr. 21 7′ 55″ ♐, obſervationi quamproximè conveniens.

Obſervat. T. B. 1593.

11. Anno 1593 die 21 *Julii*, horis à meridie 14. videbatur ♂ *Vraniburgi* in gr. 17 45′ 45″ ♓, quo tempore Sol vero ſuo motu erat in gr. 8 26′ 6″ ♌, & Diſtantia Terræ à Sole 101500.

Medius motus Martis erat Sig. 10. gr. 21 33′ 10″, Anomalia Sig. 5. gr. 22 45′ 11″, hinc dabitur Proſthaphæreſis gr. 1 30′ 47″ auferenda, locus

igitur

igitur Martis heliocentricus cadit in gr. 20 2′ 23″ ♒, cui adde Reductionem 0′ 6″, & proveniet locus ♂ à ☉ in Ecliptica in gr. 20 2′ 29″ ♒, Poſtmodò ex ſubſtractione loci Martis è loco Solis, habebimus Anomaliam Orbis annui, Sig. 5. gr. 18 23′ 37″.

In Triangulo A N Y notum eſt latus A Y 138318, & latus A N 101500 cum angulo ab iis comprehenſo Y A N gr. 11 36′ 23″, dabitur ergò angulus A Y N gr. 27 42′ 6″, jam ſi loco *Martis* adinvento, hic angulus addatur (eò quod Anoma ia Orbis Semicirculum non complevit) habemus verum locum *Martis* Geocentricum in gr. 17 44′ 35″ ♓, omnibus modis ut obſervatio habet.

12. Eodem anno 1593. die 29 *Auguſti*, Hor. 10. 20′. *Uraniburgi*, obſervatus eſt Mars in gr. 11 14′ ♓. Obſervat. T.B. 1593.

Verus locus Solis tunc fuit in gr. 15 54′ 24″ ♍, Diſtantia 100581.

Medius motus *Martis* erat Sig. 11 gr. 11 54′ 41″, Aphel. Sig. 4. gr 28 48′ 7″, Anomalia Sig. 6. gr. 13 6′ 34″, Æquatio gr. 2 42′ 48″. addenda, locus igitur ♂ à ☉ in Ecliptica Sig. 11 gr. 14 38′ 14″, Diſtantia ♂ à ☉ curtata 138639. Dein ſubtrahe locum Martis ſic inventum, à loco Solis vero, & relinquitur Anomalia Orbis Sig. 6. gr. 1 16′·10″, cujus exceſſus ſupra Semicirculum menſurat angulum X A O gr. 1 16 10″, quo dato, cum lateribus circumjectis A X 138639, A O 100581, innoteſcunt exinde anguli A O X gr. 175 22′ 55″, A X O gr. 3 20 55″, cum latere O X 37648. Demùm ſi ſubtrahatur angulus O X A ex loco *Martis* à *Sole*, remanet locus ♂ à Terrâ in gr. 11 17′ 19″ ♓, proximè obſervationi conſentiens.

13. Anno eodem 1593. die 3. *Octobris*, Hor. 8. veſperi, obſervatus eſt *Mars Uraniburgi* in 7. gr. 50′ 10″ ♓, ad quod tempus verus locus Solis eſt in gr. 20 15 13″ ♎, Diſtantia 99526. Obſervat. T.B. 1593.

Medius motus Martis erat Sig. 0. gr. 0 12′ 10″, Anomalia Sig. 7 gr. 1 23′ 56″, Proſthaphareſis gr. 6 7′ 37″ addenda, ita ut locus ♂ à ☉ in Ellipſi cadit in gr. 6 19′ 47″ ♈, in Ecliptica verò in gr. 6 20′ 39″ ♈, Diſtantia curtata, 140692, Anomalia Orbis Sig. 6. gr. 54′ 34″.

Propterea in Trigono A W ♪, tria nota ſunt, nempè A W 140692, A ♪ 99526, W A ♪ gr. 13 54′ 34″, ex illis dabitur A ♪ W gr. 137 36′ 6″, & A W ♪ gr. 28 29′ 20″, cum latere ♪ W 50158, locus igitur ♂ Geocentricus erit in gr. 7 51′ 19″ ♓, omnibus modis ut refert Obſervator.

14. Anno Chriſti Salvatoris 1595. die 17 *Septembris*, Hor. 16 45′. Nobilis *Tycho Brahe* obſervavit *Uraniburgi*, Stellam *Martis* in gr. 26 7′ 12″ ♉, quo tempore Sol erat in gr. 4 17′ 57″ ♎, Diſtantia 100018. Obſervat. T.B. 1595.

Medius motus Martis erat Sig. 0 gr. 14 34′ 48″, Anomalia Sig. 7. gr. 15 44′ 12″. Æquatio gr. 8 14′ 37″ addenda, locus igitur Martis à Sole erit juxta Eclipticam, in gr. 22 56′ 6″ ♈, quem aufero ex loco Solis vero, & relinquitur Anomalia Orbis Sig. 5. gr. 11 27′ 51″, cujus Complementum ad duos rectos gr. 18 32′ 9″, eſt angulus V A R.

In Triangulo V R A data ſunt duo latera A V 143259, A R 100018. cum angulo V A R gr. 18 32′ 9″, ex quibus dabitur angulus A V R gr 33 17′ 35″, loco *Martis à Sole* præinvento, addendus; *Mars* ergò ex *Terrâ* videbatur ſub linea R V in gr. 26 7′ 41″ ♉, omninò ut *Tycho* obſervavit.

15. Deniq; eodem anno 1595. die 3 *Novembris*, Hor. 12. *Uraniburgi*, nobilis ille *Tycho* obſérvavit *Martem* in gr. 16 18′ 30″ ♉, quo tempore verus locus Solis erat in gr. 21 2′ 19″ ♏, & Diſtantia ejus à Sole 98719. Obſervat. T.B. 1595.

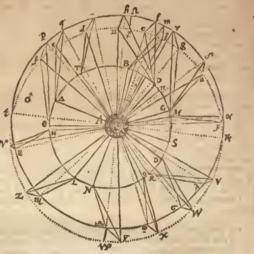
Medius motus Martis tunc fuit Sig. 1 gr. 9 6′ 27″, Anomalia Sig. 8. gr.

gr. 10 15′ 40″, Proſthaphæreſis gr. 1c 20′ 22″, medio motui Martis addenda, ideoq; locus ♂ heliocentricus eſt in gr. 19 26′ 45″ ♉, ad Eclipticam autem reductus in gr. 19 26′ 45″ ♉, quibus è loco Solis ablatis reſtat Anomalia Orbis Sig. 6. gr. 1 35′ 34″. Tùm in Triangulo A F M dantur latera A F 148809, A M 98719, cum angulo F A M gr. 1 35′ 34″. ergò dabitur angulus Parallaxeωs Orbis Telluris M F A gr. 3 7′ 59″, qui ablatus à loco heliocentrico, relinquit locum Geocentricum in gr. 16 18′ 46″ ♉, haud aliter quàm *Tycho* obſervavit.

Determinatio Latitudinis ♂ in his quindecim obſervationibus.

PRimo Exemplo mihi erit latitudinis in *Marte* inveſtigatio anno 1582. die 23 *Novembris*, Hor. 16′ 0′, quo tempore latitudo à D. *Tychone* obſervata fuit gr. 2 49′ Borea.

Schema latitudinis ♂.



In Diagrammate adjecto ſit ♌ ♐ limes maximæ Inclinationis Boreæ, μ Nodus Boreus, ſeu interſectio Orbitæ ♂ cum Eclipticâ, e Nodus Auſtrinus, μ ♂, Diſtantia Planetæ à Nodo (in primâ obſervatione) gr. 44 13′ 22″, quæ à nobis, Anomalia latitudinis ubiq; vocatur.

1. *Pro Reductione.*

In Triangulo Sphærico ♂ μ a ad a Rectangulo, datur μ ♂ gr. 44 13′ 22″, cum angulo a μ ♂ gr. 1 51′ 4″, ergò reperitur μ a gr. 44 12′ 27″, Reductio itaq; erit 0′ 55″, quæ ablata è loco in Orbitâ, relinquit locum ad Eclipticam reductum Sig. 3. gr. 0. 41′ 49″.

2. *Pro*

2. *Pro Inclinatione ab Eclipticâ.*

Ut Radius μ ♌ gr. 90, ad maximam Inclinationem ♌ ♪ 4912, ita μ ♪ gr. 44 13′ 22″ ad Inclinationem ♪ a 3426, qualium Radius Orbis eſt 152040. ſed quoniam A ♪ hic intenditur ultra Radium communem, reperitur Inclinatio correcta 3580. & Diſtantia Curtata 158847.

Porrò in Triangulo A a G, datis angulis A a G gr. 25 57′ 19″, a A G gr 19 1′ 3″, cum latere A G 98366, ergò dabitur G a Diſtantia Martis à Terrâ 73236.

Ex verâ igitur ſimplici & reali cauſâ, non imaginariis Circulis, & eorum librationibus ſcientificè demonſtratur, quare Planeta perigæus majores faciat latitudines, apogæus minores, non ex ficto Epicycli nullibi exiſtentis motu ſed Terræ ad Planetam acceſſu. *Philolaus* Lib. 4. de Syſtemate Mundi.

Poſtremò. *Pro Latitudine Martis acquirendâ.*

In Triangulo G a ♪, dantur latera G a 73236, a ♪ 3580, cum angulo recto ad a, innoteſcit itaq; angulus ♪ G a gr. 2 47′ 55″, qui menſurat ipſam latitudinem Martis Geocentricam.

Determinatio Latitudinum Martis *in omnibus hiſce quindecim Obſervationibus.*

In ſingulis Triangulis data ſunt Crura.

Obſer.	Diſtantia ♂ à Tellure.		Inclinatio ♂.			Anguli latitudinum ♂ in ⊖ Gr. ′ ″.
1	G a	73236	a ♪	3580	Ex quibus inveniuntur,	♪ G a 2 47 55. Bor.
2	B b	75126	b m	5007		b B m 3 52 52. Bor.
3	D c	83929	c l	::99		c D l 3 32 40. Bor.
4	T d	8-664	d ♈	4948		♈ T d 3 23 5. Bor.
5	△ e	110769	e q	4204		q △ e 2 10 26. Bor.
6	θ f	131342	f p	3472		f θ P 1 30 52. Bor.
7	S g	172089	g y	4952		g S y 1 38 54. Bor.
8	☌ ♊	120844	♊ h	5361		h ☌ ♊ 2 32 25. Bor.
9	H ♈	51046	♈ E	2060		E H ♈ 2 18 39. Auſtr.
10	Z L	43628	Z m	3626		Z L m 4 45 4 Auſtr
11	N y	43928	y ♎	4463		♎ N y 5 48 4. Auſtr.
12	O X	37648	☉ X	3957		☉ O X 5 55 17. Auſtr.
13	D W	50158	σ W	2941		W D σ 3 21 20. Auſtr
14	R V	57923	V λ	1870		V R λ 1 50 58. Auſtr.
15	M α	50204	F α	2:4		α M F 0 1 36. Bor.

Ex Demonſtrationibus jam præmiſſis liquidò apparet latitudinem Planetæ ſemper maximam eſſe circa *Oppoſitionem cum Sole*, aut inferioribus circa ☌ *inferiorem*, tunc nimirùm quando, prope limitem, diſtantia Planetæ & Terræ creſcit, vel decreſcit in eâdem proportione, in quâ & Inclinatio; & nullam eſſe in Nodis, nam ubi *nulla inclinatio, ibi nulla latitudo.* Sed quoties inter Planetam & Terram eſt eadem diſtantia, quæ inter Planetam & Solem, Latitudo æqualis eſt Inclinationi; cùm autem hâc minor eſt diſtantia Planetæ à Terrâ, Latitudo ſuperat Inclinationem, cùm illa minor, hæc major, ſuperatur ab eâ.

Comparatio latitudinis & inclinationis Planetæ.

CAP.

CAP. XVII.

Nova, & genuina Inferiorum 2. *Planetarum*, Veneris & Mercurii, *Theoria, in Longitudinem & Latitudinem.*

De Inferioribus Planetis ♀ & ☿.

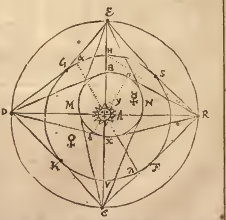
Quando Planetæ inferiores non nobis ſunt viſibiles.

Mercurius ſemper prope Solem videtur.

CUm jam (ut promiſimus) Lectorem accuratâ *Terræ* & trium ſupra eandem Planetarum, *Saturni*, *Jovis* & *Martis* Theoriâ donaverimus, jam ad *Venerem* & *Mercurium* deſcendamus, qui inferiores Planetæ eò vocantur, non quod ſuperioribus Planetis ſplendore & pulchritudine inferiores ſunt, ſed quia eorum Orbes intra magnum *Terræ* Orbem verſus *Solem* & centrum *Mundi*, ſicut alii extra locantur; hinc efficitur, ut hi duo Planetæ (ſuperioribus contrarii) nobis, quando in lineâ quæ per centrum Solis ad Terram permeat, conjunguntur, non ſint viſibiles; unde acceleratio & retardatio ſuorum motuum (quibus in eorum Revolutionibus ſubjecti ſunt) non tàm perceptibilis ſit, & facilis inventu, quam in ſuperioribus Planetis: hi tamen, ut cæteri, in motibus quando ſunt propè Solem, veloces, & quando remoti ſunt, ſecundum eorum poſitiones Terræ reſpectu, tardiores apparentes, circa Solem in Eccentricia Circulis moventur. Horum pulcherrimus eſt *Venus*, quæ proxima intra Terræ, & ſupra *Mercurii* orbitam, qui eſt Planeta centro Mundi proximus, locatur; adeo ut maximam *Veneris à Sole* digreſſionem, reſpectu majoris extentionis Orbitæ ſuæ, oculo longè majorem quàm *Mercurii* apparere neceſſe ſit, eâq; de cauſâ, *Mercurius* (*à Terrâ*) ſemper prope *Solem* videtur, adeout rariſſimè cernatur, unde ex inopiâ Obſervationum in omnibus Orbitæ ſuæ partibus, motus ejus nec rectificari, nec prope ad veritatem accedere inveniri potuerit, ante annos proximè elapſos, qui nos obſervationibus *Tychonis Brahei*, *Gaſſendi*, *Shakerlæi & Hugenii* auxiſſent, quarum auxilio, Orbis ſui veram proportionem, & Radium, locum Aphelii ſui & Nodos rectiſſimè revelavimus; imò (affirmare audeam) tàm prope veritatem, quàm hiſce Obſervationibus obtineri poſſit, ſicut iis qui in Cœleſtibus obſervationibus verſati ſunt citò apparebit.

Demonſtratio generalis motûs duorum inferiorum Planetarum ♀ & ☿.

Jam igitur, ut motuum horum duorum Planetarum generalem Demonſtrationem faciamus, addam hoc Diagramma, in quo A locum Solis, H L F O Orbem *Veneris*, B M X N Orbem *Mercurii*, & E D C R, annuum Terræ orbem repræſentat. Cum igitur Terra erit in C & Venus in H, tum in Conjunctione cum Sole eſſe videtur, & maximo intervallo à Terrâ diſtat, quo tempore veteres in *Apogæo Epicycli* eſſe exiſtimabant. Terrâ autem progrediente ad R (Venus adhuc in H, vel potius in S cogitato) Planeta in maximâ



maxima ſuâ matutina à Terrâ elongatione eſſe apparet, & ſubter lineâ R S videtur, atque mox oculo erit *ſtationarius* ; & deniùm Terrâ progrediente ad E (Planeta adhuc in H, vel in B) *Retrogradus eſt* & prope Terram, quo tempore, *Ptolemaus* in *Perigæo Epicycli* exiſtimat. Denique cum Terra eſt in D, Venus ſubter lineâ D G videtur, & tum eſt in *maximâ* ſuâ *veſpertinâ* à Sole *digreſſione*. Eâdem quoq; ratione, *Mercurius* excurſiones à Sole conficit, ſed propter parvam ſui Orbis à Sole extenſionem, & celeritatem motûs, breves excurſus habet & crebrò *Stationarius* & *Retrogradus* fit, crebrò Soli jungitur, eoq; à nobis rariſſimè videtur. Ut in ſchemate videbis. Et ſic ſecundum annuum Terræ motum horum interiorum Planetarum loca (propriis motibus in eorum circulis conſideratis) in Cœlis apparent. Quam *præclara* & *admirabilis* hæc inclyti *Copernici Hypotheſis* ſit, Obſervationes in hoc libro manifeſtè declarabunt, unde videre licet illam veritati longè magis convenire quàm vel illâ *Ptolemæi*, vel *Tychonis*, ut alibi demonſtratur.

Cur Planetæ inferiores aliquando regredi appareant.

Venus longiſſimè à Sole progreditur & pauciores Stationes conficit. Mercurius breves excurſus habet, & crebrò Stationarius & Retrogradus fit, propter celeritatem, & parvam ſui orbis extenſionem, unde crebrò Soli jungitur, eoq; rarò apparet.

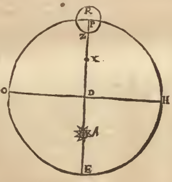
Proſthaphæreſis, *Parallaxis* ſeu *Æquatio Orbis Veneris* vel *Mercurii* (ſuperioribus Planetis contraria) eſt *angulus ad Terram* inter lineam Solis & locum Planetæ in Orbe ſuo comprehenſus, ſicut in hâc figurâ, angulis A C K, A C M, A R S, A R B, &c. intelligitur, quod nihil aliud eſt quàm apparens eorum à lineâ Solis digreſſio, ſicut Planeta è Terræ centro ſpectatur.

προσθαφαίρεσις ſeu παράλλαξις Orbis quid?

Tabula Dimenſionum Orbitarum Terræ, Veneris, & Mercurii.

Dimenſiones Orbitarum Terræ, Veneris, & Mercurii.

	Terra.	♀	☿
Semidiameter Eccentri D H	100000	72405	38192
Semid. Epicycli P Z	8	1	429
Eccentricitas D A = D X	1788	530	8100
	gr. ′ ″	gr. ′ ″	gr. ′ ″
Variatio Anomaliæ Æquatæ Maxima	0 1 26	0 0 0	1 18 10
Inclinatio Maxima Orbitæ ab Eclipticâ.	0 0 0	3 22 50	6 54 0



CAP. XVIII.

Quomodo verus Motus Stellæ Veneris *in Longitudinem & Latitudinem, ex Triangulorum calculo inveſtigetur.*

Locus ♀ obſervatus Anno 1585. à D. Tychone Brahæo.

ANno Chriſti 1585. Die 14 *Septembris*, Horis à Meridie 17 15′, *Uraniburgi*, *Tycho Brahæus* obſervavit *Venerem* in gr. 15 55′ ♌, cum Latitudine Auſtrinâ gr. 2 8′. Tempus medium erat *Londini* Hor. 16 22′ 30″.

Verus locus Solis tunc erat in gr. 1 47′ 2″ ♎, & diſtantia Terræ à Sole 100091.

Medii Motus Veneris hi ſunt.

	Sig.	gr.	′	″.
Medius motus Veneris	1	10	29	9.
Aphelium	9	28	37	40.
Nodus Boreus	2	13	9	21.
Anomalia media	3	11	51	29.

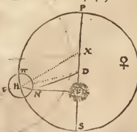
Calculi Geometrici forma in longitudinem *Veneris*.

Ex quibus mediis motibus verus locus *Veneris* in Longitudinem demonſtratur hoc modo. Primùm itaq; deſcribatur Diagramma datis his motibus conſentaneum, in quo repræſentet P H Q Orbitam *Veneris*, X focum ſeu Umbilicum medii Motûs, A focum alterum, in quo ſit Sol, D Ellipſeos centrum, P Aphelium, Q Perihelium, P X H Anomaliam mediam, ſeu Angulum medii Motûs, P D H Anomaliam Æquatam, H D N Æquationem Epicycli, P D N, Anomaliam Coæquatam, & denique P A N Angulum ad Solem. Hiſce ita expoſitis, ad praxin Trigonicam calculi Veneris loci tranſeamus.

Primùm igitur in Triangulo Obliquangulo X D H dantur latera D H, 72405. D X 530 cum angulo D X H gr. 78 8′ 31″, ergò notus erit Angulus D H X gr. 0 24′ 38″, & Angulus H D X gr. 101 26′ 51″.

At quoniam in Anomalia *Veneris* ob parvitatem Eccentricitatis, nulla deprehenditur variatio in Octantibus, itaq; duplico Angulum Anomaliæ Æquatæ P D H gr. 101 26′ 51″, proditq; Anomalia Epicycli ɛ π N gr. 202 53′ 42″, erit ergò Angulus D H N gr. 22 53′ 42″.

Secundò. In Triangulo D H N, ex datis lateribus D H 72405. H N 1. cum angulo ab iiſdem comprehenſo D H N gr. 22 53′ 42″, inveniuntur Anguli H N D gr. 157 6′ 17″, H D N gr. 0 0′ 1″, & latus D N 72404. Si autem angulo P D H gr. 101 26′ 51″. Angulus H D N addatur, evadet Anomalia Coæquata P D N gr. 101 26′ 52″.



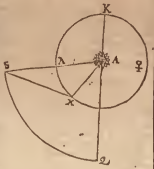
Proceſſus calculi veri loci ♀ per Triangulorum ratiocinium.

3. In Triangulo A D N jam cognita ſunt duo latera D N 72404. D A 530. cum Angulo comprehenſo A D N gr. 78 33′ 8″, (qui eſt Complementum Anguli P D N ad duos rectos) idcircò cognitus eſt Angulus ad Solem D A N gr. 101 2′ 10″, quo ablato ex Anomaliâ Eccentri mediâ P X H gr. 101 51′ 29″ è Tabulis præinventâ, manebit Æquatio abſoluta gr. 0 49′ 19″, ſubtrahenda.

In

In eodem Trigono, ex Angulis A D N gr. 78 33′ 8″, D A N gr. 101 2′ 10″, & latere D N 72404, manifeſtatur diſtantia *Veneris* à *Sole* A N 72301.

	Sig.	gr.	′	″.
Medius motus Veneris	1	10	29	9.
Æquatio Subtr.			49	19.
Locus ♀ Heliocentricus	1	9	39	50.
Nodus Boreus	2	13	9	21.
Argumentum Latitudinis	10	26	30	29.



Ut autem habeatur Reductio, ſeu Arcus ille parvus, quo differunt inter ſe arcus Orbitæ & Eclipticæ, deſcribatur Orbis Terræ Annuus (ut in tertio Schemate) cujus centrum ſit D, Aphelium P, Perihelium Q. Deinde intra eum deſcribatur Orbis *Veneris* K E T Y inclinatus ad Orbem K B T V in plano Eclipticæ. Sitq; Nodus Auſtrinus K, Boreus T, quo peracto, numeretur Argumentum Latitudinis à T per K in L gr. 326 30′ 29″, eritq; Complementum L T gr. 33 29′ 31″.

In Triangulo igitur Rectangulo T X L datur Angulus L T X = E B, qui eſt Maxima Inclinatio Orbis *Veneris* ab Eclipticâ gr. 3 22′ 50″, cum Hypotenuſâ T L gr. 33 29′ 31″, ergò non latebit Arcus T X in Eclipticâ gr. 33′ 26′ 46″, qui cum ſubducatur ex Arcu T L, remanet *Reductio* 2′ 47″, quæ addenda eſt loco *Veneris* Heliocentrico, ut patet in hoc Paradigmate.

	Sig.	gr.	′	″.
Locus ♀ Heliocentricus	1	9	39	50.
Reductio Orbitæ Add.			2	47.
Locus ♀ Heliocentricus ad Eclipticam reductus	1	9	42	37.
Verus locus Solis	6	1	47	2.
Anomalia Orbis	7	7	55	35.

De Inclinatione Orbis Veneris inveſtigandâ.

Inclinatio ♀ ab Eclipticâ (ut repræſentatur in eodem 3. Schemate) per Arcum L X facilè obtineri poteſt. Nam ut Radius T E gr. 90. ad maximam Deviationem E B 4264. ita Sinus T L gr. 33 29′ 31″, ad Deviationem L X 2353. Ac quoniam L X ad A L reſtringitur, inveniemus Inclinationem datæ diſtantiæ 72301. competentem, nempè 2350. Vel in Triangulo A X L Rectangulo ex Hypothenuſâ A L 72301. & Angulo X A L gr. 1 51′ 53″, dabitur Inclinatio L X 2351, & Diſtantia Curtata A X 72263.

Parallaxeos Orbis ♀ in Terrâ inveſtigatio.

In Schemate ſecundo numeretur Anomalia Orbis ab F per K in X gr. 217 55′ 35″, ex quibus ſi auferatur Semicirculus F λ gr. 180. relinquitur Angulus S A X gr. 37 55′ 35″.

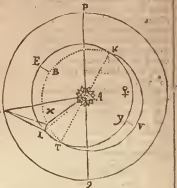
In Triangulo A S X, ex datis lateribus A S 100091. A X 72263. & Angulo ab iiſdem comprehenſo S A X gr. 37 55′ 35″, cognitus eſt Angu-

lus A S X gr. 45 52′ 7″, qui eſt Parallaxis Orbis *Veneris* in *Tellure*, & deniq; ex iiſdem datis, invenitur Diſtantia ♀ è *Terrâ* S X 61883.

Porrò ſi ex loco Solis dato auferatur hæc Orbis Parallaxis Sig. 1. gr. 15 52′ 7″, habebimus verum locum Geocentricæ Longitudinis ♀ quæſitum à verno Æquinoctio in gr. 15 54′ 55″. Leonis, diſcrepantem à loco obſervato ſaltèm Scrup. 0′ 5″. quod certè perexiguum eſt, & vix unquam ullâ Hypotheſi accuratius determinandum.

Pro inveniendâ Veneris *in Terra Latitudine.*

Ut Latitudo *Veneris* in *Terrâ* habeatur, duco lineam L X, & quoniam X A L eſt Angulus Inclinationis ad Solem, & Angulus X S L latitudinis in Terrâ, erit igitùr horum quantitas viſa reciproca ad diſtantias, nempè in minore diſtantiâ major erit ſpectata, in màjore, minor, in ratione Sinuum, ut à Clariſs. & Doctiſs. viro *S Wardo*, S. T. D. (Epiſcopo nunc *Exoniæ*) in fine *Aſtronomiæ Terreſtris* commodè demonſtratur.



Proportio erit ſic.

S X : A X :: s X A L : s. X S L. Nempè, Ut diſtantia ♀ à Terrâ, 61883. ad ſinum datæ Inclinationis gr. 1 51′ 53″, ita diſtantia ♀ à Sole 72263. ad Sinum latitudinis ♀ in Terrâ, gr. 2 10′ 38″.

Alitèr. In Triangulo X L S, ad X Rectangulo, è lateribus S X 61883. L X 2351. dabitur Angulus Latitudinis gr. 2 10′ 34″.

Tertiò, Ut Sinus anguli Anomaliæ Orbis, S A X gr. 87 55′ 35″, ad Sinum Anguli Elongationis A S X gr. 45 52′ 7″. ita Tangens Inclinationis X A L gr. 1 51′ 53″, ad Tangentem Latitudinis X S L gr. 2 10′ 38″, ut ante.

Synopſis aliarum Obſervationum ♀.

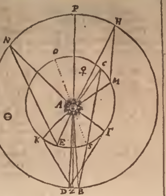
Cum ex ſelectiſſimis *Tychonis Brahæi* obſervationibus integram Veneris Hypotheſin extruxerimus, nunc paradigmatis loco, (ut rem ipſam attingere poſſimus) alias Obſervationes hujus Planetæ cœlitùs factas in lucem adduximus, ex quibus certiſſimæ evadunt dimenſiones, & quantitates Orbitæ *Veneris* ad Annuum *Terræ* circulum comparatæ. Adhibebimus itaq; Obſervationem

Obſervat. T. B. 1588. à *Tychone Brahæo* adhibitam, Anno 1588. die 14. *Decembris*, Hor. 19 40′. *Uraniburgi*, quo tempore deprehenditur Venus in gr. 17 10′ ♏, cum Latitudine Boreâ gr. 3. 10′.

Verus locus Solis tunc fuit in gr. 3. 49′ 49″, ♑, & Diſtantia Terræ à Sole 98221. Medius motus ♀ erat Sig. 4. gr. 22 25′ 21″, Aphelium Sig. 9. gr. 28 42′ 27″, Nodus Boreus Sig. 2. gr. 13 11′ 22″, Anomalia media Sig. 6. gr. 23 42′ 54″, ex quibus per Planorum Triangulorum, præcedentibus rationibus, inductionem, reperitur Angulus ad Solem gr. 155 56′ 45′, qui cum ſubducatur ex Complemento Anomaliæ ſimplicis à Perihelio, relinquit Proſthaphæreſin Eccentri ♀ gr. 0 20′ 21″, addendam: Locum igitùr

igitùr ♀ à ☉ colligemus in gr. 22° 45′ 42″ ♌, à quo, ablatâ Reductione 1′ 56″, relinquitur locus ♀ Heliocentricus in Eclipticâ in gr. 22 43′ 46″. Leonis.

In Schemate appoſito ſit Orbis Terræ annuus P N Z H, Orbis Veneris O K S M, Locus Solis A, Terræ D, Veneris F. Tùm in Triangulo D A F, datis lateribus D A 98221. A F 71811, cum Angulo comprehenſo D A F gr. 48 53′ 57″, dabitur Parallaxis Orbis *Veneris* in *Terrâ*, A D F gr. 46 41′ 9″, & Diſtantia *Veneris* à *Terrâ* D F 74323. Cùm autem verus locus Solis priùs conſtiterit Sig. 9. gr. 3. 49′ 49″, proindè datâ Parallaxi hinc ablatâ, relinquitur locus ♀ ex Calculo Trigonico in gr. 17 8′ 40″ ♏.



2. Anno Chriſti 1590, die 17 *Decembris*, Horis à Meridie 20 0′ *Uraniburgi*, obſervata eſt Stella *Veneris* in gr. 20 0′ ♐, cum Latitudine Borea gr. 0 27′, uti memorat *Longomontanus*. Lib. 2. Theoric. Cap. 17. & *Bullialdus* Aſtr. Phil. fo. 327. Obſervatio T. B. anno 1590. facta.

Tempus medium erat *Londini* Hor. 19 10′ 15″, & tunc fuit verus locus Solis in gr. 6 25′ 0″ ♑, in Diſtantiâ à Tellure 98220.

Medius motus *Veneris* erat Sig. 7. gr. 26 50′ 10″, Nodus Boreus Sig. 2. gr. 13 12′ 37″, Anomalia media Sig. 9. gr. 28 4′ 46″, Hinc juxta Doctrinam Trigonicam à nobis præmemoratam, reperitur Æquatio eccentri gr. 0 44′ 18″, ergò ♀ ex Sole erat in gr. 27 34′ 28″ ♏, in Eclipticâ verò in gr. 27 36′ 0″ ♏, Diſtantia ♀ à ☉ Curtata 72651. Eſt locus Terræ in B in gr. 6. 25′ 0″ ♋, Locus ♀ Heliocentricus in C, nempè in gr. 27 36′ 0″ ♏, erit itaq; Anomalia Orbis Sig. 10 gr. 21 11′ 0″.

In Triangulo A B C ex datis lateribus A B 98220, A C 72651, cum Angulo comprehenſo B A C gr. 141 11′ 0″, dabitur primò Angulus Parallaxeos Orbis *Veneris* A B C gr. 16 23′ 26″, & deinde Diſtantia *Veneris* à *Terra* 161384. Poſtremò ſi auferatur Parallaxis Orbis gr. 16 23′ 26″, ex loco Solis vero gr. 6 25′ 0″ ♑, relinquit locum *Veneris* Geocentricum in gr. 20 1′ 34″ ♐, qui Obſervationi adamuſſim convenit.

Anno Chriſti 1594 die 17 *Decembris*, Hor. 5 0′, Obſervata eſt Stella *Veneris* circa limitem veſpertinum in gr. 25 1′ ♒, cum Latitudine Auſtrinâ gr. 1 6′. Obſervat. T. B. anno 1594.

Verus locus Solis tunc erat in gr. 5 49′ 0″ ♑, Diſtantia 98220.

Medius motus ♀ Sig. 1 gr. 26 37′ 2″, Aphelium Sig. 9. gr. 28 51′ 17″, Nodus Boreus Sig. 2. gr. 13 15′ 4″, Anomalia media Sig. 3. gr. 27 45′ 45″, hinc dabitur Æquatio Eccentri abſoluta gr. 0 44 39″ ſubtrahenda, & diſtantia *Veneris* à *Sole* 72151. Locus ergò ♀ Heliocentricus in Eclipticâ ad K erit in gr. 25 54′ 5″ ♉, & locus Terræ ad Z in gr. 5 49′ 0″ ♋, Diſtantia 98220

Idcircò in Triangulo A K Z cognoſcitur Angulus K A Z gr. 39 54′ 55″, cum lateribus circumjectis A Z 98220, A K 72151, ergò datur Angulus Parallaxeos Orbis *Veneris* K Z A gr. 47 11′ 36″, cum diſtantiâ Veneris à Terrâ Z K 63104. Adde autem hanc Parallaxin ad locum Solis verum

gr.

gr. 5 49′ 0″ ♑, & conſtituit iocum *Veneris* Geocentricum in gr. 23 8′ 36″ ♒, omnibus modis ut obſervatum eſt.

Obſervatio *Caſſellis* facta anno 1595.

4. Anno Chriſtl 1595. *Auguſti* die 9. manè obſervata eſt *Venus Caſſellis* (uti habet *Bullialdus Aſtron. Philolaic.* fol. 343.) in gr. 25 39′ ♋, Nam fuit Diſtantia ♀ à Stellâ quæ eſt in ilibus, ſeu lumbis *Helices*, ſive ab inſeriori antecedentium *Plauſtri* gr. 47 52′, à Capite verò ſequentis ♊ gr. 10 25′, ex quibus elicitur *Veneris* locus in gr. 25 39′ ♋, cum latitudine Boreâ gr. 0 7′.

Verus locus Solis tunc erat in gr. 25 16′ 11″ ♌, Diſtantia *Terræ* à *Sole* 101147.

Medius motus ♀ Sig. 2. gr. 12 8′ 31″, Nodus Boreus Sig. 2. gr. 13 15′ 27″, Anomalia Sig. 4. gr. 13 16′ 18″, Æquatio 36′ 46″ ſubtrahenda, Locus igitur *Veneris* Heliocentricus fuit in gr. 11 31′ 45″ ♊, reſpectu verò Eclipticæ in gr. 11 32′ 56″ ♊, Diſtantia ♀ à ☉ 72046. In iſtâ Obſervatione ſit *Terra* in N, *Sol* in A, & *Venus* in E.

In Triangulo A N E, datis lateribus AN 101147, A E 72046. cum Angulo E A N gr. 106 15′ 45″, dabitur Angulus A N E gr. 29 41′ 11″, & Diſtantia *Veneris* à *Terra* N E 139653, Ergò Locus *Veneris* Geocentricus erat in gr. 25 35′ 0″ ♋, quamproximè Obſervationi conſentiens.

Obſervatio *Bullialdi*, anno 1633.

5. Anno Chriſti 1633. die 26 *Maii* Stylo Novo, Hor. 9. *Pariſiis* Obſervata eſt *Venus* à Clariſs. *Bullialdo* in gr. 18 21′ ♋, cum latitudine Boreâ gr. 2 48′.

Quo tempore noſtro ex calculo Sol erat in gr. 5 39′ 13″ ♊, habens diſtantiam à Terrâ 101538.

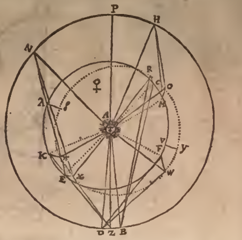
Medius Motus *Veneris* fuit in gr. 5 19′ 57″ ♏, Anomalia Sig. 9. gr. 5 32′ 11″, *Proſthaphæreſis* Eccentri 50′ 4″. addenda, Locus igitur Veneris ex Sole reſpectu Eclipticæ erat in gr. 6. 12′ 55″ ♏, Diſtantia ♀ à ☉ curtata 72415.

In hâc Obſervatione ſit locus Terræ in H in gr. 5 39′ 13″ ♐, Solis in A, Veneris in M in gr. 6 12′ 55″ ♏, ergò cognoſcitur Angulus H A M gr. 29 26′ 18″. Hoc itaq; dato, cum lateribus circumjectis A H 101538, A M 72415. dabitur primò Angulus. M H A gr. 42 46′ 18″, & deindè latus H M 52411, Locus ergò Veneris ex Terra erat in gr. 18 25′ 31″ Cancri.

Determinatio Latitudinis Stellæ Veneris *in hiſce quinq; Obſervationibus.*

Sit in hoc Diagrammate P N Z H Orbis Telluris, S ʌ K F Orbis *Veneris* inclinatus ad Orbem S ♪ X V O in plano Eclipticæ, inclinatione fixâ ʌ ♪ gr. 3 22′ 50″. Quinetiam ſit X Nodus Boreus, S Auſtrinus, Limes Boreus y, Auſtrinus ♪, Sintq; N D Z B H loca Terræ in ſingulis 5: obſervationibus, & ♈ X W O R Loca *Veneris* reſpectu Eclipticæ.

Ergò



Schema ♀ latitudinum.

Ergò in ſingulis Triangulis data ſunt Latera.

Obſ.	Diſtantia ♀ à Terrâ.	Inclinatio ♀.		Anguli latitudinis ♀ in ⊖. gr. ′ ″.
1	D W 74373	F W 3969	Ex quibus inveniuntur	F D W 3 3 17. Boreæ.
2	B R 161384	R C 1153		R B C 0 24 34. Boreæ.
3	Z ♈ 63104	K ♈ 1274		K Z ♈ 1 9 12. Auſtr.
4	N X 139653	X E 128		E N X 0 3 10. Auſtr
5	H O 52411	O M 2596		O H M 2 50 10. Boreæ.

Determinatio latitudinum ♀ in omnibus hiſce 5. Obſervationibus.

CAP. XIX.

Inveſtigatio veri Motûs Stellæ Mercurii, *ex Triangulorum Calculo, tùm ſecundum Longitudinem, tùm Latitudinem.*

DE MERCURIO.

ANno Chriſti 1590. die 6 *Martii*, Horis à Meridie 6 50′ *Uraniburgi*, Nobilis ille *Tycho Brahæus* obſervavit Mercurium in gr. 13 44′ Arietis, cum Latitudine Boreâ gr. 1 42′.

Locus Solis à Terrâ tunc videbatur in gr. 25 58′ 9″ ♓, & Diſtantia Terræ à Sole 99679. qualium Radius Orbis eſt 100000.

Medius motus *Mercurii* erat Sig. 2. gr. 26 23′ 11″, Aphelium Sig. 8. gr. 9 47′ 49″, Nodus Boreus Sig. 1. gr. 12 12′ 38″, & Anomalia media Sig. 6. gr. 16 35′ 22″.

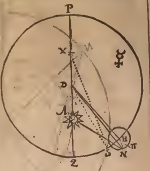
Sit Diagramma datis his motibus deſcriptum, in quo numeretur Anomalia media à P per Q in S gr. 196 35′ 22″, à quibus cum detrahatur Semicirculus gr. 180. manebit Angulus QXS gr. 16 35′ 22″.

Primùm

Primùm in Triangulo Obliquangulo XSD dantur latera DS 38192. DX 8100. & Angulus DXS gr. 16 35′ 22″. ergò dabitur Angulus DSX gr. 3 28′ 17″. & Angulus SDX gr. 159 56′ 21″, ergò cognoſcitur in complemento ad Semicirculum, Angulus QDS gr. 20 3′

Theoria ☿.

39″, quo duplicato, dabitur Anomalia Variationis gr. 40 7′ 18″. idcirco quoniam Maxima Variatio eſt gr. 1 18′ 10″, Variatio huic Anomaliæ datæ reſpondens, reperitur gr. 0 50′ 22″ = SH. Adde autem SH ad Angulum QDS gr. 20 3′ 39″. & conflatur. QH = Angulo QDH gr. 20 54′ 1″ cujus duplum gr. 41 48′ 2″. eſt motus Epicycli πN.



Calculi Geometrici forma in ☿.

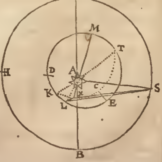
In Triangulo DHN quoniam dantur bina latera DH 38192. NH 429. cum Angulo ab iiſdem comprehenſo DHN gr. 138 11′ 58″ (qui ſe offert quando motus Epicycli πN è Semicirculo ſubducatur) dabitur itaq; Angulus HND gr. 41 22′ 30″, & Angulus Æquationis Epicyclicæ HDN gr. 0 25′ 31″, Dein addatur HDN Angulus Angulo PDH gr. 159 5′ 59″, & emergit Angulus PDN gr. 159 31′ 30″, & latus DN 38513.

Rurſùm in Triangulo ADN Obliquangulo, quoniam data ſunt duo latera, DN 38513, DA 8100, cum Angulo indidem comprehenſo ADN gr. 20 28′ 30″, (qui ſcilicet in complemento Anguli PDN invenitur) ex his primò acquiritur Angulus ad Solem DAN gr. 154 17′ 24″, qui cum auferatur à Complemento Anomaliæ Simplicis gr. 163 24′ 38″, relinquitur Æquatio abſoluta gr. 9 7′ 14″, quæ addenda eſt medio motui *Mercurii* Sig. 2. gr. 26 23′ 11″, & conflatur locus *Mercurii* Heliocentricus in Orbitâ Sig. 3. gr. 5 30′ 25″.

In eodem Triangulo, quoniam cogniti ſunt Anguli DAN gr. 154 17′ 24″. ADN gr. 20 28′ 30″, & quia latus DN antea confeſſum erat 38513. idcircò per analyſin Trigoni, inveſtigatur Diſtantia *Mercurii* à Sole AN 31054, qualium DH Radius ſupponitur 38192.

De Reductione inquirenda.

In hoc Diagrammate ſit RHQS Orbis Terræ Annuus ſuper centro D deſcriptus, R Aphelium, Q Perihelium, Terræ. Rurſùs centro O deſcribatur Orbis *Mercurii*, cujus Aphelium erit M, Perihelium Z. Demùm deſcribatur Semicirculus Eclipticæ Orbem *Mercurii* ſecans in punctis K & T, adeo ut K repræſentet Nodum Boreum, T Auſtrinum, & CE Limitem Boreum maximæ Deviationis.



In Obſervatione hâc *Tychonicâ* locetur *Sol* in A, *Terra* in S, *Mercurius* in L in Orbitâ, ſed in X reſpectu Eclipticæ, erit itaq; LX inclinatio Orbis *Mercurii* ab Eclipticâ, & KL Argumentum Latitudinis gr. 53 17′ 47″.

Quoniam jam in Triangulo Sphærico KLX, ad X Rectangulo, habemus KL

KL gr. 53 17′ 47″, cum Angulo maximæ Inclinationis LKX gr 6 54′, ergò datur KX in Eclipticâ gr. 53 5′ 48″, & quia arcus KX in Eclipticâ ſit minor arcu KL in Orbitâ, idcircò eorum differentia 11′ 59″, erit Reductio ab Orbitâ ſubtrahenda, quæ cum auferatur ex loco *Mercurii* eccentrico Sig. 3. gr. 5 30′ 25″, relinquitur locus heliocentricus ad Eclipticam reductus Sig. 3. gr. 5 18 26″. Deindè ut Anomalia Orbis inveniatur, ſubtrahendus eſt locus Solis Sig. 11 gr. 25 58′ 9″, ex loco *Mercurii* heliocentrico nupèr invento, Sig. 3. gr. 5 18′ 26″, & manebit Anomalia Orbis quæſita Sig. 3. gr. 9 20′ 17″.

De Inclinatione ☿ ab Eclipticâ inveſtigandâ.

Ut Inclinationem *Mercurii* ab Eclipticâ determinemus ad incudem, data eſt Maxima Deviatio EC 4588, & Argumentum Latitudinis KL gr. 53 17′ 47″, quocircà Arcus XL eſt 3678 nam ut Radius KE gr. 90, ad CE 4588; ita Sinus KL gr. 53 17′ 47″. ad Sinum LX 3678. qualium Radius Orbis eſt 38192, ſed qualium AL 31054. eſt Radius, erit Inclinatio LX ſaltem 2992. Aliter in Triangulo ALX, ex Hypothenuſâ AL 31054, & Angulo LAX gr. 5 31′ 53″, dabitur Inclinatio LX 2992, ut priùs, ſimilitèr & Diſtantia *Mercurii* à *Sole* curtata AX 30909.

Pro Parallaxi Orbis Mercurii *computandâ.*

Sit in Schemate A Sol, X locus Mercurii in Eclipticâ, S Terra, ASX Parallaxis Orbis Mercurii in Terra, quam ad inveſtigandam, data ſunt duo latera circa Angulum XAS (qui ſe offert gr. 80 39′ 43″.) nempè AS 99679. & AX 30909, evadet itaq; Angulus Parallaxeos ASX gr. 17 51′ 30″; cum Diſtantiâ Mercurii à Terra SX 99456. Poſteà addito hoc Parallaxeos Angulo ad locum Solis verum gr. 25 58′ 9″ ♓, conflatur locus Mercurii Geocentricus in gr. 13 49′ 39″ Arietis, vix diſſentiens ab Obſervatione *Tychonicâ.*

Poſtremò, *Pro inveſtigatione Latitudinis ☿ Geocentricæ.*

Sit in eâdem figurâ XL Deviatio Orbis *Mercurii* ab Eclipticâ, LAX Angulus Inclinationis quoad Solem, & deniq; XSL Latitudo Geocentrica. In Triangulo Rectangulo SXL, quoniam habentur duo latera circa Rectum, nempè SX 99456, & XL 2992, ergò per Analyſin Trianguli, emergit Angulus XSL gr. 1 43′ 21″, qui eſt Latitudo *Mercurii* Geocentrica ad tempus hujus Obſervationis *Tychonicæ.*

Synopſis Aliarum quinq; Obſervationum Stellæ ☿.

Huic alias quinq; Obſervationes locorum *Mercurii* obſervatorum huc adducemus, quarum prima eſt *Tychonis*, poſteriores quatuor, viri clariſſimi *Petri Gaſſendi.*

1. *Tychonis* Obſervatio adnotatur à *Longomontano*, *Uraniburgi* facta, Anno 1585. die 14 *Novembris*, Hor. 19 0′, & Mercurium tenuiſſe gr. 13 4′ ♏, cum latitudine boreâ gr. 2 18′.

Erat tunc temporis verus Solis locus in gr. 2 55′ 25″ ♐, diſtantiâ Telluris à Sole 98493. exiſtente.

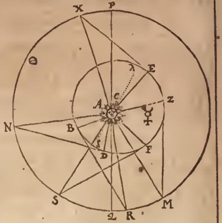
Medius motus *Mercurii* Sig. 4. gr. 11 8′ 13″, Anomalia Sig. 8. gr. 1 27′ 44″, hinc dabitur Angulus ad Solem gr. 95 5′ 37″, qui ablatus ex Complemento Anomaliæ mediæ ad Circulum gr. 118 32′ 16″, relinquit Æquationem Eccentri abſolutam gr. 23 26′ 39″, videbatur ergò *Mercurius* ex *Sole* in gr. 4 34′ 52″ ♍, ſed reſpectu Eclipticæ in gr. 4 43′ 43″ ♍.

Erat Diſtantia Mercurii à Sole curtata 36024. Dein ſubtrahatur locus Solis ex loco Mercurii jam invento, & relinquit Anomaliam Orbis Sig. 9. gr. 1. 48′ 28″.

His ita inventis, deſcribatur Circulus Terræ Annuus P X N S Q R M, cujus centrum ſit a, Sol verò A. Deſcribatur intra eum Orbita Mercurii B D F Z E, ſitq; Aphelium λ. Perihelium ρ, Locus Mercurii in primâ Obſervatione in F, Terra in S, &c.

In Triangulo itaq; S A F quoniam dantur A S 98493. A F 36024, cum Angulo compre-henſo S A F gr. 91 48′ 18″, ergò datur Angulus Parallaxeωs, ſeu Elongationis *Mercurii* à *Sole* gr. 19 52′ 13″, qui ablatus ex vero loco *Solis* gr. 2 55′ 25″ ♐, oſtendit verum locum *Mercurii* geócentricum in gr. 13 3′ 12″. Scorpionis.

Schema motûs ☿ in Longitudinem.



Obſervatio *Gaſſendi* anno 1633.

2. Accipiemus Obſervationem à viro clariſſimo *Petro Gaſſendo* factam anno 1633. die 24 *Decembris* horis à meridie 5 38′. Meridiano *Londinenſi*, quo tempore obſervavit *Mercurium* in gr. 2 32′ 43″ ♒, in Elongatione maximâ à *Sole* gr. 18 59.

Locus Solis tunc fuit in gr. 13 33′ 27″ ♑, Diſtantia *Terræ* à *Sole* 98235.

Medius Motus *Mercurii* erat Sig. 1. gr. 10 25′ 18″, Aphelium Sig. 8. gr. 11 2′ 28″, Anomalia Sig. 4. gr. 29 22′ 50″, Angulus à Sole in gr. 133 45′ 59″; Æquatio abſoluta gr. 15 36′ 51″, Locus igitur *Mercurii* Heliocentricus erit in Ecliptica in gr. 24 56′ 0″ ♈, hinc datur Anomalia Orbis Sig. 3. gr. 11 22′ 33″.

In iſtâ Obſervatione ſit A *Sol*, R *Terra*, B *Mercurius*, & Angulus R A B complementum Anomaliæ Orbis ad Semicirculum gr. 78 37′ 27″, quo dato, cum lateribus circumjectis, A R 98235, A B 32221, dabitur ergò Angulus Elongationis A R B gr. 18 58′ 22″. & R B Diſtantia *Mercurii* à *Terra* 97159. Adjecto autem hoc Angulo præinvento gr. 18 58′ 22″, veræ longitudini Solis gr. 13 33′ 27″ ♑, conſlatur locus *Mercurii* Geocentricus in gr. 2 31′ 49″ ♒, omninò ut *Gaſſendus* obſervavit.

Obſervatio *Gaſſendi* 1634.

3. Anno Chriſti 1634. die 23 *Septembris*, Hor. 17 8′. (Merid. *Londini*) eruditiſſimus vir *Gaſſendus* vidit *Mercurium* in gr. 22 59′ 30″ ♏, in Evagatione maximâ à Sole gr. 17 49′ 54″.

Locus Solis tunc temporis erat in gr. 10 48′ 30″ ♎, Diſtantia 99835, Medius motus *Mercurii* Sig. 2. gr. 19 36′ 15″, Anomalia Sig. 6. gr. 8 32′ 31″, Æquatio gr. 4 48′ 32″ addenda, videbatur ergò *Mercurius* ex *Sole* in gr. 24 12′ 24″ ♊, in Diſtantiâ à Sole 30571, quare dabitur Anomalia Orbis Sig. 8. gr. 13 23′ 54″.

Tum

Tum in Triangulo N A D dantur A N diſtantia *Terræ* à *Sole* 99835, A D diſtantia *Mercurii* à *Sole* 30571, cum Angulo comprehenſo N A D gr. 73 23′ 54″, ergò habitur Angulus A N D gr. 17 49′ 37″, & D N Diſtantia *Mercurii* à *Terra* 95694. Deindè cum auferatur hic Angulus gr. 17 49′ 37″, à loco *Solis* gr. 10 48′ 30″ ♎, relinquit locum *Mercurii* à *Terra* in gr. 22 58′ 53″ ♍, omnibus modis ut obſervatum eſt.

4. Anno Salvatoris noſtri 1635. Die 14 *Januarii*, Hor. 17 38′ ſub Meridiano *Londinenſi*, *Gaſſendus* deprehendit *Mercurium* in gr. 10 5 ♑, in Elongatione Maximâ à *Sole* gr. 25 9′ 30″, Erat locus *Solis* tunc temporis in gr. 5 14′ 29″ ♒, & Diſtantia *Terræ* à *Sole* 98436. — *Obſervatio Gaſſendi* 1635.

Medius Motus *Mercurii* erat Sig. 6. gr. 2 7′ 44″, Aphelium Sig. 8. gr. 11 4′ 16″. Anomalia Sig. 9. gr. 21 3′ 28″, Æquatio in Ellipſi gr. 20 3′ 51″ Addenda, videbatur itaq; *Mercurius* ex Sole in Eclipticâ in gr. 22 19′ 21″ ♎, eratq; diſtantia ☿ à ☉ curtata 42762. Iſtis ſic inventis, ſubtraho locum Solis ex loco Mercurii præinvento, & numerus reſiduus eſt Anomalia Orbis Sig. 8. gr. 17 4′ 52″, cujus exceſſus ſupra Semicirculum gr. 180, menſurat Angulum M A Z gr. 77 4′ 52″.

In Triangulo M A Z dantur A M diſtantia Terræ à Sole 98436, A Z diſtantia Mercurii à Sole 42790, cum Angulo nuper invento M A Z gr. 77 4′ 52″, Ergò reperitur Angulus Elongationis A M Z gr. 25 8′ 27″ cum Diſtantia ☿ è tellure M Z 98170.

Poſtremò aufer Angulum Elongationis gr. 25 8′ 27″, è loco *Solis* vero gr. 5 14′ 29″ ♒, & relinquitur locus *Mercurii* Geocentricus in gr. 10 6′ 2″ ♑, quamproximè Obſervationi conſentiens.

5. Anno Chriſti 1636. die 6. *Julii*, hor. 8 8′, Clariſs. *Petrus Gaſſendus* denuò obſervavit *Mercurium* in Digreſſione Maximâ à Sole in gr. 21 33′ ♌, ut Doctiſſimus *Bullialdus* ex *Gaſſendi* Obſervationibus rectè colligit. — *Obſervatio Gaſſendi*, 1636.

Fuit hoc tempore, verus locus Solis in gr. 24 29′ 7″ ♋, Diſtantia 101704. Medius motus Mercurii erat Sig. 7. gr. 16 18′ 20″, Aphelium Sig. 8. gr. 11 6′ 47″. Anomalia Sig. 11 gr. 5 55′ 33″, Angulus ad Solem gr. 147 2′ 24″, Æquatio Ellipſeos gr. 8 9′ 9″. Addenda, locus igitùr ☿ Heliocentricus erat in Orbitâ gr. 24 27′ 29″ ♏, reſpectu verò Eclipticæ in gr. 24 22′ 49″ ♏, & Diſtantia curtata 46194. Jam ſi auferatur locus Solis è loco Mercurii præinvento, relinquit Anomaliam Orbis Sig. 3. gr. 29 53′ 42″.

In Triangulo X A E (in quo X repræſentat Terram, A Solem, & E Mercurium) datis lateribus A X 101704. A E 46194, cum Angulo comprehenſo E A X gr. 60 6′ 18″, innoteſcit Angulus Elongationis E X A gr. 26 58′ 32″, & E X diſtantia Mercurii à Terrâ 88286, Locus igitùr Mercurii Geocentricus cadit in gr. 21 27′ 39″ ♌, quamproximè Obſervationi congruens.

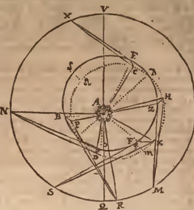
Determinatio Latitudinis MERCURII *in his quinq; Obſervationibus.*

IN hoc Schemate ſit α Nodus ☿ Boreus, λ Nodus Auſtrinus, φ ♏ Limes Deviationis Boreus, δ ♌ Limes Auſtrinus, V N Q M Orbis Terræ, δ B F E Orbis Mercurii à plano Eclipticæ inclinatus, X N S R M loca Terræ in quinq; Obſervationibus, E B O F Z loca Mercurii. Sitq; α F Argumentum Latitudinis in primâ Obſervatione Sig. 3. gr. 22 29′ 12″, cujus Complementum repræſentatur per arcum F λ gr. 67 30′ 48″.

Calculi Geometrici forma in latitudinem Mercurii.

In Triangulo itaq; F λ K ad K Rectangulo, datur F λ gr. 67. 30′ 48″, cum Angulo maximæ Inclinationis F λ K gr. 6 54′, ergò reperitur Inclinatio F K gr. 6 22′ 23″.

Porrò in Triangulo A F K, ex datis F A Diſtantia *Mercurii* ex *Sole* 36024, & Angulo F A K gr. 6 22′ 53″, dantur A K Diſtantia Curtata 36024 & FK Inclinatio 4023. Deniq; in Triangulo A S K quoniam dantur A S 98493, A K 36024. cum Angulo λ A K gr. 91 48′18″, ergò habetur Elongatio A S K reſpectu Eclipticæ gr. 19 52′ 13″, ut antè, cum diſtantiâ *Mercurii* à *Terra* S K 105934. Propterea in Triangulo S F K ad K Rectangulo, datis lateribus S K 105934, & F K 4023, dabitur Angulus Latitudinis Boreæ F S K gr. 2 10′ 30″.



In Obſervatione ſecundâ, Argumentum Latitudinis a λ B eſt Sig. 11 gr. 11 25′ 45″, ideoq; juxta Doctrinam priorem, habemus Inclinationem B P 1234, & Diſtantiam *Mercurii* à *Terra*, P R 97159, ergò reperitur Angulus Latitudinis ☿ in *Terra* B R P gr. 0 43′ 39″, & quoniam diſcedit *Mercurius* à limite maximæ latitudinis Auſtrinæ, oſtendit latitudinem ☿ eſſe Auſtrinam Deſcend.

3. Dantur in Triangulo D N O duo latera D N 95695. D O 2418, datur itaq; Angulus D N O gr. 1 26′ 50″, qui repræſentat latitudinem *Mercurii* boream.

4. In Triangulo H M Z, habentur MH 98170, Z H 1864, ideircò habetur Angulus H M Z gr. 1 5′ 12″, qui menſurat Latitudinem ☿ Boream in quartâ Obſervatione, ut *Gaſſendus* obſervavit.

5. In Triangulo E X C dantur C X 88288, C E 1060 cum Angulo Recto E C X gr. 90, ergò invenitur Angulus Latitudinis ☿ in hâc 5. Obſervatione E X C gr. 0 41′ 16″.

Præſtantia *Hypotheſis Copernici.*

Jam unicuiq: luculentiſſimè innoteſcat quomodò motus Planetarum ſecundum genuinum Nobilis *Copernici Syſtema*, peculiaribus & Ellipticis Semitis, Regali & Harmonico ordine *Solem* circumferuntur; cujus fuſius ſpeculatione & ſcientiâ adjuti veros eorum motus calculare, & mirabiles illas apparentiæ inæqualitates ad punctum ipſiſſimum corrigere potuimus, quòd omnes Europæ totius Aſtronomi haùd adhuc conſequerentur, donec ſacra & prænobilis *Urania θυγάτηρ Διὸς* ſibi totùm ex animo devotum *Copernicum* proritâſſet ad emancipandos filios ſuos è Peripateticorum jugo & adventitiis figmentis humanæ compoſitionis, ſumivendulà ſcilicet *Ptolemæi* Hypotheſi, quæ *Equantibus*, *Epicyclis*, *Differentibus*, & Circulis *Inclinationum*, *Deviationum*, *Reflexionum*, & ſimilibus conſarcinata fuerat, quos veteres Aſtronomi ad corrigendas *Directiones*, *Retrogradationes*, & *Stationarias apparentias*, quibus quotidianos motus, & *Περιφορίας* peragendo Planetas ſæpius obnoxios fuiſſe vidiſſent, commenti ſunt.

Amplius verò forſitàn ſperandum foret me ſpeciales aliquot Regulas de inveſtigandâ poſitione Abſidum & Planetarum eccentricitatibus in Ellipſi depoſiturum,

depoſiturum, quod quidem facilè fieri poſſe hàud eo inficias, at vix accuratè cum medii motus circa, aut ſuper *Focum Ellipſeos* non adamuſſim computantur, & exeruntur. Præterquam ab accuratâ collatione *Fulſionum Acronychiarum* perfacile ſit ſcrutari locum Aphelii, & veram quantitatem Proſthaphæreſeos Planetæ in Ellipſi, ſingulis in partibus ejuſdem, (quæ tempore veræ Oppoſitionis Planetæ ad Solem, nihil aliud eſt quam differentia inter medium & verum Planetæ motum) & corrigere Tabulas jam exaratas immutando locum *Aphelii*, *Medium Motum*, & *Eccentricitatis* quantitatem ubi res poſtulat. Quam quidem methódum plerumq; pede preſſo (quod aiunt) aſſecutus fuerim, nihilominùs novis illis Demonſtrationibus Clariſſimi viri *Sethi Wardi* S. T. D. in *Aſtronomiâ* ejus *Geometricâ* traditis uti haùd ſum dedignatus. Vide Cap. 5. hujus.

Denique ut lucuſentiſſimè eluceſcat particulares Orbium Planetariorum dimenſiones confiniri, aptèq; determinari, coronidi hujuſce Libri abſtruſam & compendiariam *Aſtronomicarum Obſervationum* omnibus in ſeculis factarum *Synopſin* adjiciemus, per quam Tabulas noſtras hâc fundatas Theoriâ accuratiùs & adaptatiùs, Cœlis congruere & conſentire, quàm cæteræ nunc dierum ſuperſtites, vel Sole clariùs luceq; pellucidiùs eluceſcere poſſit.

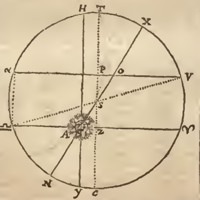
CAP. XX.

De Mediorum Motuum SOLIS, *aliorumq; Planetarum conſtitutione.*

QUoniam veteres Aſtronomi pauciſſimas Obſervationes poſteritati tradiderunt, eaſq; non ſine erroris ſuſpicione, erit opus difficillimum ex earum auxilio ad veritatem exactè accedere, attamen factâ Obſervationum collatione, & ob *Solis Refractionem* & *Parallaxin* correctione, propriùs ad ſcopum veniamus: & multa quidem exempla (ſi opus eſſet) inveſtigationi *Apogæi Solis*, & Motus ejus medii hic darem, ſed brevitatis cauſâ ſufficiet hæc.

Æquinoctium Autumnale quartum, quod obſervavit *Hipparchus Alexandriæ* erat Anno 177. ab obitu *Alexandri*, die 3. Intercalarium, Mediâ Nocte, quod ſi à *Parallaxi* & *Refractione* liberatur, accideret Horas 7 29′ citiùs, nempè Hor. 4 31′. Obſervatio *Hipparchi* Anno 177. ab obitu *Alexandri*.

Vernale verò primùm Anno 178. die 27 *Mechir* Hor. 5. manè apparebat celeriùs quàm reverâ oportebat ob Solis *Refractionem* (& poſt Horas 11. denuò apparuit) quapropter factâ correctione debitâ, concludemus Æquinoctium hoc vernale fuiſſe factum *Mechir* 27 Hor. 0 25′. Obſervatio altera Anno 178 à morte *Alexandri*.



Fuit autem intervallum temporis inter hæc duo Æquinoctia, Dierum 178. Hor. 19 54′, quo tempore Sol vero ſuo motu abſolvit gradus 180. ſed medio circa Focum Ellipſis alterum, conficit ſolummodò gr. 176. 15′ 44″, ita ut arcus Orbitæ *Solis* V ♈ = ♌ ♎, ſit gr. 1 52′ 8″, cujus Sinus eſt 3262.

&

Ratio Geometrica.

& ergò P S erit 1631. in Triangulo itaq; Rectangulo S P O, dantur S O Semiſſis Eccentricitatis 1788, P S 1631, S P O Angulus Rectus gr. 90. innoteſcit igitur Angulus P O S gr. 65 48′ 47″. Quare locus Apogæi Solis cadit tunc temporis in gr. 5 49′ ♊.

At verò ex aliis Obſervationibus locum Apogæi inveſtigemus, ad Obſervationem *Albategnii* in *Sole* factam perveniemus.

Obſervatio *Albategnii*, anno Chriſti 882.

Anno *Dhilkarnaim* 1192. *Chriſti* verò 882. obſervavit *Albategnius Arectæ* in *Syriâ*, intervallum inter Æquinoctium Autumnale & Vernale eſſe Dies 178. Hor. 14 30′, ut habet *Cap.* 28. *Lib. De Scientia Stellarum*, quod ſi corrigatur, debet non ſuperare Dies 178. Hor. 11 46′, quo tempore Sol ſuper Focum veri motûs A movetur gr. 180. ſed ſuper alterum O, reſpectu medii motus, modò gr. 175 55′ 42″. Nunc in Diagrammate, datus eſt arcus α ♎ gr. 2 2′ 9″, & conſequenter Angulus α V ♎ vel P V S erit Semiſſis ejuſdem arcus gr. 1 1′ 4″, itaq; datur latus P S 1776. ¼. Tum in triangulo Rectangulo S P O, ex datis S O 1788. P S 1776. inventus eſt angulus P O S gr. 83 25′. Quapropter habebimus locum Apogæi tempore *Albategnii*, anno 882. in gr. 23 25 ♊, & demùm anno Chriſti 1601. ineunte, juxta Obſervationes *Tychonis Brahæi* exquiſitiſſimas, eum collocavimus, in gr. 5 43′ ♋.

Ratio geometrica.

Methodus altera.

Inter varias rationes quas hactenus excogitarunt Aſtronomi, non parvi momenti, nec aliquid obſcuritatis habet illa, quam tradidit Doctiſs. vir. *S. Wardus* S. T. D. *Aſtron. Geometric. Lib.* 1. *Part.* 1. *Cap.* 2. & *Lib.* 1. *Part.* 2. *Cap.* 2. ubi ſternitur via ad hujus rei inquiſitionem facillima; nempè quomodo linea Apſidum ex obſervationibus aptè inveniatur; & quoniam præbet magnam utilitatem & magis veritati conſentire videtur, quàm methodus illa ſupradicta, quare nunc rem Exemplo & Schemate dilucidiorem reddere conabimur.



Priuſquam aggrediamur opus ipſum, operæ-pretium eſſe videtur pauca Doctoris præfari, quæ ita ſe habent.

Modus Doctiſs. *Sethi Wardi*, de Poſitione Apſidum inveniendâ.

Quoniam motus *Solis* (reverâ *Terræ*) in Ellipſi tardiſſimus fit ad A, celerrimus ad P, mediocris ad D & I, & quod ab I per A ad D, motus apparens (ſeu anguli ad S) fit minor motu medio ad F, deinceps major, atque in tranſitu per D & I æqualis, & quod in æqualibus diſtantiis, ſive à locis apſidum A & P, ſive à *διχοτόμων* D & I motus Solis apparentes ſint inter ſeſe æquales.

Modi tres.

Itaq; manifeſtum eſt quod ſi à *Sole* (vel *Terrâ*) obſervetur punctum maximæ tarditatis vel celeritatis *Solis*, vel ſi obſervetur ubi locorum motus apparentes ſunt inter ſeſe æquales, utrinq; numerando; vel tandem, ſi obſervetur ubi motus verus eſt medio æqualis; invenietur poſitione *lineæ Apſidum*. Nunc ad

ad *Exemplum* fiat progreſſus. Si obſervationes loci *Solis* (quæ magnâ curâ & ſagacitate factæ fuerant anno 1659.) rectè inſtituantur, ex debitâ collatione, motum Solis verum diurnum ad dies 16 & 17 *Martii*, medio ejus motui fermè æqualem, fuiſſe inveniemus, quo tempore Sol erat in gr. 6 45′ ♈. Iterùm hi motus ſunt inter ſeſe æquales ad dies 19 & 20 *Septembris* proximè ſequentis, quando Sol tenebat gr. 6 45′ ♎, ac proin *Apogæum Solis* cadit in gr. 6 45′ ♋, ex hiſce obſervationibus. Exemplum, 1.

Rurſus ad dies 26. & 27. *Aprilis* ejuſdem anni colligitur ex aptâ obſervationum veri Solis loci ad multos dies ante & poſt, collatione, verus motus *Solis diurnus*, 57′ 50″, cui denuò æqualis deprehenditur ad dies 10 & 11 *Augusti* ſequentis. In primâ obſervatione, verus Solis locus erat in gr. 16 49′ ♉, qui ablatus ex loco ejus in ſecundâ gr. 27 8′ ♌, relinquit angulum G S y gr. 100 19′ cujus dimidium æquale eſt angulo G S A gr. 50 9″, qui adjectus *Solis* loco in primo obſervatu ad G, oſtendit locum *Apogæi Solis*, eo tempore adfuiſſe in gr. 6 58′ ♋, qui non procul à veritate recedit. Aliud.

Ex Obſervationum igitùr collatione, ſtatuimus Apogæi Solis locum, anno à morte *Alexandri* 178. die 27 Menſis *Mechir* meridie, in ♊ gr. 5 50′ 18″ 33‴ 17^{iv} 0^{v} 29^{vi} 24^{vii}. & rurſum anno Chriſti 1588. *Januar.* 15. (qui eſt annus ab obitu *Alexandri* 1912. die 27 *Mechir*, meridie) in ♋ gr. 5 30′ 8″ 21‴ 48^{iv} 31^{v} 16^{vi} 24^{vii}. In annis igitur Ægyptiis 1734. locus Apogæi progreſſus eſt in conſequentia gr. 29 39′ 49″ 48‴ 31^{iv} 30^{v} 47^{vi} 0^{vii}. Cum itaq; diviſerimus hunc motum per Sexagenas annorum Ægyptiorum 1734. nempè 2‴ 55″ 48′ 30^{d}. colligemus diurnum Apogæi motum 10‴ 7^{iv} 25^{v} 18^{vi} 22^{vii}. NOTA.

Motus Apogæi ergò erit,

		Ægyptiis.									*Julianis.*								
		S.	gr.	′	″	‴	iv	v	vi	vii	Sex.	gr.	′	″	‴	iv	v	vi	vii
In annis	1	0	0	1	1	35	8	55	43	50	0	0	1	1	35	8	56	43	50.
	10	0	0	10	15	51	29	37	18	20	0	0	10	16	11	44	17	55	4.
	100	0	1	42	38	34	54	33	3	20	0	1	42	42	48	0	5	42	30.
	1000	0	17	6	25	49	5	30	33	20	0	17	7	8	00	0	57	5	0.

Nunc ut habeamus medium motum Solis ad diem 27 *Mechir*, meridie, auſero Apogæum ita reſtitutum Sig. 2. gr. 5 50′ 18″ ex vero loco Solis Sig. 0. gr. 0 0′ 0″, & cum reſiduo, accipio Æquationem gr. 1 50′ 45″, quæ ſi auferatur è loco Solis vero, relinquit Sig. 11 28° 9′ 15″. Secundò ex motu ſic invento, rurſùs aufero *Apogæum*, & cum reſiduo Sig. 9 22° 18′ 57″, habebimus *Proſthaphæreſin* gr. 1 52′ 5″, quæ ablata ex motu Solis vero, ut anteà remanet Sig. 11. gr. 28 7′ 55″, ex quibus iterùm ſubtraho *Apogæum Solis*, & relinquitur Anomalia media Sig. 9. gr. 22 17′ 37″, cui reſpondet Æquatio gr. 1 52′ 6″, quæ ultimò dempta ex vero motu, ut ante oſtenſum eſt, relinquit medium *Solis* motum, ad diem 27 *Mechir* ho. 0 25′ P. M. ſub Meridiano *Alexandriæ*. Sig. 11. gr. 28 7 54. Quocirca anno à morte *Alexandri* 178. die 27 *Mechir*, meridie, ſub Meridiano *Londinenſi* ſtatuimus medium motum Sex. 5. gr. 58 13′ 17″ 35‴ 45^{iv} 59^{v} 37^{vi} 30^{vii}. qui intra Scrup. 1. Obſervationi congruit, quod factum eſt, ut aliis etiam Obſervationibus aptè convenire poſſit.

Erat annus Mundi 3804. dies 24 Menſis Martii.

Secundum ſimilem methodum colligimus medium Solis motum ad diem 15 *Januarii* 1588. Sex. 5. gr. 3 54′ 47″ 59‴ 26^{iv} 35^{v} 15^{vi} 0^{vii}.

Ab obſervatione *Hipparchi* ad illam *Tychonis* ſunt Anni Ægyptii 1734. qui faciunt Sexagenas 2‴ 55″ 48′ 30^{d}, quo tempore Sol abſolvit *Circulos Zodiacos* 1732. & Circuli partem, nempè Sex. 5. gr. 5 41′ 30″ 23‴ 40^{iv} 35^{v} 37^{vi} 30^{vii}. quod cognoſcitur per ſubtractionem numeri primi ex ſecundo. Tum converto hos *Circulos Zodiacos* 1732. cum Sexagenis 5. in hunc modum.

Circuli

		'''	''	'
Circuli Zodiaci	1700	2	50	0
	20		2	0
	12		1	12
Sexagen.	5			5
Summa.		2	53	17

Summa omnium erit ſic.

'''	''	'	o	'	''	'''	iv	v	vi	vii.
2	53	17	5	41	30	23	40	35	37	30.

Hic eſt *modus Reductionis* (quo utor) tàm annorum, quàm motûs in Sexagenas atq; Sexageſimas. Jam ſi diviſerimus Sexageſimas Motuum Solis per Sexagenas temporis, dabit Quotus motum Solis diurnum, ſicut ex ſubſequenti operatione commonſtrabitur.

Motus Solis diurnus.

	'''	''	'	o	'	''	'''	iv	v	vi	vii	
	2	53	17	5	41	30	23	40	35	37	30	
		2	55	48	30							
	2	52	52	41	30							A.
Reſtat.			24	24	11	30	23	40	35	37	30	
			23	26	28	0						B.
Reſtat.				57	43	30	23	40	35	37	30	
				55	40	21	30					C.
Reſtat.				2	3	8	53	40	35	37	30	
				2	3	3	57	0				D.
Reſtat.						4	56	40	35	37	30	
						2	55	48	30			E.
Reſtat.						2	0	52	5	37	30	
						2	0	8	8	30		F.
Reſtat.								43	57	7	30	
								43	57	7	30	G
Reſtat.										0	0	H

Hinc elicitur motus Solis diurnus.

'	''	'''	iv	v	vi	vii	viii.
59	8	19	42	1	41	15	0
A	B	C	D	E	F	G	H.

Poſteà, multiplico motum *Solis* diurnum per Sexagenas unius anni 6′ 5°. & productum præbet motum *Solis* annuum, ut in operatione ſpectes.

Motum Solis annuum invenire.

S.	o	'	''	'''	iv	v	vi	vii.	
0	0	59	8	19	42	1	41	15.	*Motus Solis Diurnus.*
6	5								
	4	55	41	38	30	8	26	15.	
5	54	49	58	12	10	7	30		
5	59	45	39	50	40	15	56	15.	*Motus Solis Annuus.*

Eodem prorsùs modo inveniatur *Medius Motus* ad 10. 100. vel 1000. annos Ægyptios aut Julianos, per multiplicationem Motûs diurni, in Sexagenas temporis dati, ut in *Exemplo* priori ſatis oſtendimus.

Proximè, ut *Epocham Medii motûs Solis* in principio annorum ab obitû *Alexandri* inveſtigeremus, obſervandum eſt, quòd dies 15. *Januarii*, anno Chriſti 1588. correſpondet diei 27. Menſis *Mechir* in anno Ægyptiaco à morte *Alexandri*, 1912. Capio itaq; tempus completum 1911. annos, 5. Menſes & 27. dies, & faciunt Sexagenas 3‴ 13″ 48′ 12ᵈ. quas multiplico in motum *Solis* diurnum, ut in *Logiſticâ Aſtronomicâ* edoctus es.

o‴

‴	″	′	°	′	″	‴	iv	v	vi	vii	
0	0	0	0	59	8	19	42	1	41	15.	
3	12	48	12								
			11	49	39	56	24	20	15	0	Lib. 1. Sect. 4.
		47	18	59	45	37	21	0	0.		
	12	48	48	16	6	21	56	15			
2	57	24	50	6	5	3	45				
3	11	1	17	51	36	59	26	35	15	0	

Dein auſero hanc Summam (rejectis priùs Sexagenis 3‴ 11″. vel Circulis Zodiacis 1910.) ex medio motu *Solis* anteà invento ad annum 1912. à morte *Alexandri*, ad diem 27 *Mechir*, Meridie, ad hunc modum.

Sex. gr.	′	″	‴	iv	v	vi	vii	
5 3	54	47	59	26	35	15	0.	Medius ☉ motus ad diem 27 *Mechir* 1912
1 17	51	36	59	26	35	15	0	Motus ☉ in Annis 1911. menſib. 5 dieb. 27.
3 46	3	11						Epocha *Alexandri.*

Epocha obitûs *Alexandri* magni.

Porrò, ut *Epocha Nabonaſſari* rectè inveniatur, accipio intervallum inter *Nabonaſſarum* & *Alexandrum* 424. annorum, in Sexagenis 42″ 59′ 20^d. quas duco in motum diurnum, & Productum (ſupra Circulos Zodiacos) erit Sex. 4 18° 41′ 34″ 4‴ 32^iv 37^v 30^vi 0^vii. quæ ſubducenda ſunt ab Epochâ *Alexandri*; ut in Paradigmate hoc videatur.

Sex. gr.	′	″	‴	iv	v	vi	vii	
3 46	3	11	0	0	0	0	0	Epocha *Alexandri*
4 18	41	34	4	32	37	30	0	Motus ☉
5 27	21	36	55	27	22	30	0	Epocha *Nabonaſſari.*

Epocha *Nabonaſſari.*

Poſtea, ut habeamus Epocham Chriſti, duco Sexagenas intervalli temporis inter *Nabonaſſarum & Chriſtum* 1‴ 15″ 46′ 26^d in motum diurnum, quemadmodum priùs oſtenſum eſt, & proveniet (præter Circulos Zodiacos) Sex. 5. gr. 10 38′ 14″ 52‴ 4^iv 6^v 22^vi 30^vii, quæ Epochæ *Nabonaſſari* addita, dabit *Epocham Chriſti*, prout apparebit in Exemplo.

Sex. gr.	′	″	‴	iv	v	vi	vii.	
5 27	21	36	55	27	22	30	0.	Epocha *Nabonaſſari.*
5 10	38	14	52	4	6	22	30.	
4 37	59	51	47	31	28	52	30.	Epocha Chriſti.

Epocha Chriſti.

Deniq; multiplico Sexagenas temporis dati inter *Chriſtum* & *Mundi initium* 6‴ 40″ 30′ 32^d, in motum Solis diurnum, & conſurget (ultra Circulos integros) Sex. 0 gr. 29 17′ 26″ 4‴ 30^iv 42^v 45^vi 0^vii. Quod productum cum auferatur ex Chriſti Epochâ, Epocham habebimus Medii motûs Solis in Mundi principio, ſic.

Sex. gr.	′	″	‴	iv	v	vi	vii.	
4 37	59	51	47	31	28	52	30.	Epocha Chriſti.
0 29	17	26	4	30	42	45	0.	
4 8	42	25	43	0	46	7	30	. Epocha Mundi.

Epocha Mundi.

Hunc in modum *Epocha cujuſlibet Æræ* inveſtigari poſſet. Ut verò medium ad motum expeditiùs perveniendum ſit, *Sexagenarias Tabulas* de motu Planetarum ſingulorum compoſuimus, quarum auxilio medii motus exemplò inveniri poſſint, vel de præterito, vel in futurum, quod in calculis Aſtronomicis ſtupendo nobis, admirandoq; uſui foret.

CAP. XXI.

De verâ magnitudine Anni Solaris.

Annus Tropicus, ſeu Vertens.

ANnus *Solaris*, ſive *Tropicus* (qui *Græcis* vocatur τροπικὸς à τρέπω, quod eſt verto, quaſi vertens & vertere ſignificat, quia juxta vocabulum Ἐνιαυτὸς, in ſe convertitur *Annus*) eſt *ille communis & uſitata pars temporis*, quâ non modo virorum ætates & omnia *Mundi* alia penè accidentia enumerantur, verùm hinc omnes humanæ actiones conquadrantur, etſi autem diverſimodè ſubducitur, attamen dependentiam ejus ſuper verum Solis locum accipit ut ſpatium illud temporis comprehendens, quo à fixo Firmamenti puncto Sol pervagatur, & eidem regreditur, hocq; *Annus Tropicus* appellatur, necnon veteres huic menſuræ curſum tendebant, at quia inconcuſſo fundamento indiguerunt (neſcii enim fuerunt veri Solis motûs) non quantitatem anni apud primam inſtitutionem rectè definiebant, ut *Ægyptii*, *Hebræi*, *Perſæ*, aliiq; qui eandem tantùm continere dies 365. conſtituerunt, veruntamen majori anno *Romani* quàm Ægyptii, aut *veteres Perſæ* utuntur, ſecundum enim *Julii Cæſaris* conſtitutionem, eum efficiunt dies 365. ho. 6. quæ ſex horæ, intercalarem annum unoquoq; 4. anno dies 366. comprehendere coercent, cùm tres intermedii anni communes denominantur, tantumq; dies 365. amplectuntur. Et hic *Annus* generalitèr *Syriis*, *Syro-Græcis*, *Ethiopibus*, *Moſcovitis*, & *Britannis*, uſus eſt; ſecundum verò *Papæ Gregorii* 13. correctionem, *Annus* (per peritiſſimorum Mathematicorum tum viventium auxilium) eſſe dies 365. hor. 5. 49′ 12″. inveſtigabatur, & juxta hanc quantitatem, aliquo in modo, Annum Solarem *Romani* reſtauraverunt, ut breviter alibi demonſtrationem exhibeam; propoſitum enim meum non eſt hic tantùm quomodò nunc ſe habet, ſpecificare aut quomodò confirmatus fuit, ut juſtam ejus quantitatem & proportionem ſecundum verum Solis motum determinare, qui (ut ait *Propheta*) in firmamento cœli poſitus fuit, ut tempeſtates & temporum viciſſitudines diſtingueret.

Græci τροπικὸν ἀπὸ τῶν τροπῶν, quod converſiones vel viciſſitudines ſignificat, appellarunt.

Quantitas anni Gregoriani.

De anno Solari, & de ejus magnitudine hic ſpatioſe tractem, quem non pauci veterum & recentiorum Aſtronomorum inæqualem fecerunt, tenuibus principiis utentes, ut ſi authores ejus, vivis enumerentur, arrogare erubeſcant, nihil invenientes aſſertiones ſtabilire ſed incertas. *Ptolemæi* obſervationes, qui (ut obſervant) *Hipparchum* imitatus eſt, quo ob longitudinem anni exactè aſtipulatur, eum facientem dierum 365. hor. 5 55′ 12″. At ſi *Ptolemæum* abdicamus, & adæquemus *Hipparchi*, *Albategnii*, & *Waltheri Norimbergæ* obſervationes *Tychonis Brahei* obſervationibus (quæ omnes ab erroribus Parallaxis & Refractionis liberatæ ſunt) Tropici anni continuam æqualitatem invenimus, quam nobilis ille *Tycho*, & *Longomontanus in Aſtron. Dan. Lib.* 1. *Cap.* 5. *Theoric.* ſagacitèr retinent, & eis aſſentit doctiſſimus *Johannes Keplerus* pag. 927. *Epitom. Aſtron. Copernic.* ubi atteſtatur ut quantitas anni omnibus ſpeculatoribus æqualem apparuerit etiam à tempore *Hipparchi* huc uſq;, præterquam *Ptolemæi* tantùm, contra quem *Obſervationes Hipparchi*, *Procli*, *Albategnii*, ut etiam doctiſſimi *Bullialdi* mutuum placitum & approbationem, noſtram reſtitutionem medii motûs Solis confirmare & ſtabilire habemus. Si non alias baſes habuiſſemus quam quod Syſtema & Ellipſis, in quâ Terra motum peragat, non permutantur, ſed eadem ſunt, hoc eos redargueret Solis motum in illis ſempèr eſſe ſimilem, ſummoperè quia excentricitas nunquàm permutatur, & prætereà non dubitandum eſt verum (ſecundum aliorum planetarum ordinem) omnibus ſeculis æqualem progreſſum in Signorum conſequentiâ, *Aphelium Terræ* efficere, ut alibi manifeſtum eſt, ſed in Lunâ præſertim, ubi per celerem motum, quàm optimè perſpicitur; ergò concluſionem adferimus, quòd Solaris anni quantitas fuit & ſemper erit æqualis, & etiam Stellarum fixarum

Continua æqualitas Anni Tropici.

Vide Aſtronomiam opticam *Joannis Kepleri*, Pag. 147.

Excentricitas Terræ nunquàm permutatur.

De Anni æqualitate, vide *Ricciolum* Tom. 1. *Almageſti* Cap. 30.

fixarum inæqualem motum, & punctorum Æquinoctialium inæqualitatem, meram fictionem eſſe.

Nunc Anni Tropici veram quantitatem ad determinandum inprimis Solis Ingreſſûs in Æquinoctialem tempus ſcrutabimur, quem animadvertit *Albategnius* anno à morte *Alexandri* 1206. die 7 *Pachon*, hor. 1. 15′ manè, qui ſecundum *Bullialdi* emendationem, *Aſtron. Philolaic. Lib.* 2. *Cap.* 2. debet eſſe hor. 1 6′ tardiùs. Per noſtram verò correctionem, obſervationum collationibus factam, Solaris tempus ingreſſûs eas intercadit, videlicet hor. 2. 4′. manè, ſecundum igitur motum Solis medium, hujus Æquinoctii autumnalis æquale tempus *Aractæ Syriæ* fuit anno à morte *Alexandri*, 1206. die 5. Menſis *Pachon*, hor. 12 30′ 35″. Hoc eſt *Londini* hor. 9 10′ 35″.

Determinatio magnitudinis Anni Tropici.

Per varias iterùm obſervationes anno 1650. variis in *Angliæ* locis, factas (à Biſſextili ſecundo, ut fuit illud *Albategnii*) verum Solis ingreſſus in ♎ tempus ſuper diem 12 *Septembris* ad hor 14 53′. inveſtigavimus, juxta igitùr ultimi Capitis doctrinam, ſecundum medium ejus motum, ingreſſus fuit die 10. hor. 13 18′ 17″. Id eſt anno à Morte *Alexandri* 1975. die 6. Menſis *Athyr*, hor. 13 18 17″. Harum nunc Obſervationum intervallum reſpectu medii ingreſſûs, eſt *anni Ægyptii* 768. dies 186. hor. 4 7′ 42″. (quod cognoſcitur, minorem temporis numerum à majori ſubtrahendo,) diviſis igitùr hiſce diebus 186. hor. 4 7′ 42″, per annos 768. erit Quotus hor. 5 49′ 4″ 21‴ 3iv. vera ergò Anni Solaris magnitudo erit dierum 365. hor. 5 49′ 4″ 21‴ 3iv.

Περὶ τῆ Ἐνιαυτῆ Τροπικῆ Φαινομένε.

Porrò anni Solaris magnitudo, vel exquiſitum Periodicæ cujuſcunque Planetæ tempus citò eliciantur ex Tabulis Sexagenariis, & ut res fiat illuſtrior, hîc unum exemplum brevitèr exhibebimus, ad cujus ſimilitudinem, omnia hujuſcemodi alia conquadrentur.

Determinatio periodicæ Revolutionis cujuſcunq; Planetæ.

Πράξις.

	Sex.	gr.	′	″	‴	iv	v	vi	vii	viii	ix	x				
	6	0	0	0	0	0	0	0	0	0	0	0.				Circulus integer.
6′.	5	54	49	58	12	10	7	30.								Numerus proximè minor. Subtr.
		5	10	1	47	49	52	30.								Reſtant.
5d.		4	55	41	38	30	8	26	15.							Numerus proximè minor.
			14	20	9	19	44	3	45.							Reſtant.
14′			13	47	56	35	48	23	37	30.						Numerus proximè minor.
				32	12	43	55	40	7	30.						Reſtant.
22″				31	32	26	30	24	54	0	0.					Numerus proximè minor.
					40	17	25	15	13	30	0.					Reſtant.
40‴					39	25	33	8	1	7	30.					Numerus proximè minor.
						51	52	7	12	22	30.					Reſtant.
52iv						51	15	13	4	25	27	45.				Numerus prox. minor.
							36	54	7	57	2	15.				Reſtant.
37v							36	28	8	8	55	2	26	15.		N. prox. min.
								25	59	48	7	12	33	45.		Reſtant.
26vi								25	37	26	32	12	43	52	30.	N. prox. min.
									22	11	34	59	49	52	30.	Reſtant.
22vii									21	41	3	13	24	37	7 30.	N. pro. M.
30viii										30	31	46	25	15	22 30.	Reſtant.

Summa Collecta $6^{m}. 5^{d}. 14' 32'' 40''' 52^{iv} 37^{v} 26^{vi} 22^{vii} 30^{viii}$.

Quantitatem Anni Solaris inveſtigandi Methodus.

Quæ ita in tempus reducuntur.

Reductio in dies, horas & ſcrup.

	Ia. d ′ ″ ‴ iv v vi vii viii
	6 5 14 32 40 52 37 26 22 30.
Annus 1.	6 5 Sexag. Anni 1. Ægyptii, vel dierum 365.
	14 32 40 52 37 26 22 30.
Hor. 5.	12 30. Sexag. 5. Horarum.
	2 2 40 52 37 26 22 30.
49′	2 2 30. Sexag. 49. Scrup. Prim.
	10 52 37 26 22 30.
4″	10 0 Sexag. 4. Secundorum.
	52 37 26 22 30.
21‴	52 30. Sexag. 21. Tert.
	7 26 22 30.
2iv.	5 0. Sexag. 2. Quart.
	2 26 22 30.
58v	2 25. Sexag. 58. Quint.
	1 22 30.
33vi	1 22 30. Sexag. 33. Sext.

Quantitas anni Tropici vera.

Hinc erit vera *Anni Solaris magnitudo* juxta Calculum noſtrum ex Tabulis, Dierum 365. Horarum 5. $49' \; 4'' \; 21''' \; 2^{iv} \; 58^{v} \; 33^{vi} \; 0^{vii}$.

Confirmatio veræ quantitatis Anni Solaris per Obſervationes.

Quòd Anni Solaris vera quantitas ſic ſe habet, per obſervationes etiam *Nicolai Cardinalis de Cuſa*, *Prophatii Judæi*, & *Georgii Chryſococcæ* confirmatur, quamoptimè verò per veteres *Hipparchi obſervationes*, quo hanc reſtitutionem medii Solis motûs, Solariſq; anni quantitatem, facti ſuimus, quæ à tempore ejus huc uſq; omnium Aſtronomorum obſervationibus optimè congruit, præterquàm *Ptolemæi*, de cujus erroribus peramplè in *Bullialdo* legimus, aliiſq;, & in ejus *Aſtron. Philolaic. fol.* 70. ſic ſcribit. "*Et ſatis apparet* "Ptolemæum *noluiſſe immutare* Hipparchi *hypotheſim Solarem, motuumq; li-* "*mitationem; quare illius obſervationes tanti facienda non ſunt, ut propter* "*illas poſteriorum rejiciamus* τηρήσεις *nobis conſignatas*

Annus penes Aſtronomos eſt duplex, Tropicus, ſeu vertens, & Sidereus.

De Anno Sidereo.

Quantitas anni Siderei.

Sydereus verò aut Stellatus annus, quem *Græci* ἀστεροειδῆ denominant, ſpatium illud temporis comprehendit, quo ab aliquo determinato Octavæ Sphæræ puncto, aut ab aliquâ hujus Cœli Stellâ Sol tranſmigrat, rurſùmq; eidem regreditur, cujus vera quantitas inveſtigatur, ſi exquiſitam Anni Solaris longitudinem, & annuum octavæ Orbis motum $50'' \; 25''' \; 55^{iv} \; 38^{v} \; 49^{vi}$. (qui è receſſu Æquinoctiorum oriri videtur,) cognoſcamus quem Sol ſecundum medium ejus motum in temporis Scrup. $20' \; 27'' \; 59''' \; 48^{iv}$. perambulat; quarè ſi anni Solaris Longitudini, tempus hoc addamus, Syderei anni Longitudinem eſſe dierum 365. Horarum 6 $9' \; 32'' \; 20''' \; 51^{iv}$. intelligemus; non igitùr hæſitandum eſt, quin *Sydereus annus* hic ad amuſſim determinatur.

CAP. XXII.

De Stellis Fixis, earumq; in Signorum conſequentiam Progreſſionibus.

SYdera fixa (longè ſupra, aut extra Planetarii Orbis perimetrum collocata) ſunt à Sole & univerſi centro immenſæ, remotæq; diſtantiæ, & ſeſe habent tanquam *externa* Planetarium *Syſtema circummuniens paries*, innumerabili ſplendidorum globorum multitudine condecoratum & repletum, qui

Stellæ

Stellæ fixæ denominantur, quæ probabilibus argumentis prorſus moveri non videntur, apparens verò ſecundum Signorum ordinem progreſſus de anno in annum, ex punctorum Æquinoctialium receſſu ab ortu in occaſum oritur, quam ob cauſam à vernali ſectione eſſe amplius ſejunctæ hæ Stellæ fixæ ſolennis illuceſcunt, ut complurium Obſervationes teſtificantur; hinc fuit *Ptolemæum* & veteres Aſtronomos (cauſam ejus ignorantes) mollem, lentumq; motum in Longitudinem ſecundum Signorum ſeriem admittere, quem juxta eorum obſervationes, aut potiùs ſuppoſitiones, aſſerebant eſſe circiter grad. 1. in centum annis. Primus omnium, qui Stellarum fixarum locos animadvertit (referente *Ptolemæo*) fuit *Timocharis*, qui annos 280. *ante Chriſtum* vixit, cujus obſervationes aliquot in manus noſtras pervenerunt, poſt quem circiter 164. annos expertus ille Mathematicus *Hipparchus* ſucceſſit (quem *Ptolemæus φιλόπονόν τε ϗ φιλαλήθη* appellat) qui ingenti labore veros earum locos ſuis temporibus inveſtigavit, novaſq; motuum Tabulas compoſuit.

Progreſſio Stellarum inerrantium oriri videtur, à receſſu punctorum Æquinoctialium in antecedentiâ.

Hipparchum ſequutus eſt *Ptolemæus* princeps ille Aſtronomorum, qui *Catalogum Hipparchianum* in quibuſdam correxit, & quædam Stellarum nomina commutavit, ut notat *Lib. 7. Cap. 4. Almageſti*, ubi rationes iſtius facti adducit.

Conſummatis 740. annis enituit *Albategnius*, omniq; tempore à *Ptolemæo* ad *Albategnium* nullus innotuit qui Stellas fixas, earumq; motus animadvertit, poſtrema verò ætas multas admirabiles, inſigneſq; patefactiones non ullis antea factas produxit. Si digniſſimum *Copernicum*, *Waltherum*, *Vernerum*, illuſtriſſimumq; principem *Wilhelmum Haſſiæ Landgravium* omittamus, qui omnes perquam exquiſitiſſimas obſervationes efficerunt, nobilis *Tycho Brahæus* tandem effloruit, qui aſſiduis vigiliis, ſummâq; curâ, faſtigium huic negotio impoſuit, adeo ut per ejus incredibilem induſtriam, immenſumq; theſauri expenſum, novum Catalogum Fixarum Stellarum per eximias obſervationes fabricavit, quo, motui Solis proximo, optimum fundamentum propter Aſtronomiæ reſtaurationem collocatum eſt.

Chimæras *Alphonſi*, *Arzahel*, aliorumq; & abſurdam *Thebith Ben-Core* ſuppoſitionem digredior, qui Stellis fixis motum aliquando in conſequentiâ, aliquando in Signorum antecedentiâ imputavit, & *Copernico* proximè deſcendam, qui inæqualitatem progreſſûs Stellarum fixarum admiſſus eſt, & quanquam abſurdos repedationis earum errores ſuſtulit, attamen Polos Terræ vult ſenſim turbinare circa Polos Zodiaci in annis 25816. *Ægyptiis*.

Vir verò clariſſimus, digniſſimuſq; *Iſmael Bullialdus* à *Copernico* diſſentit, qui motus Stellarum inæquales per punctorum Æquinoctialium in antecedentiâ receſſum, & per turbinationem polorum terræ efficit, contra quam inæqualitatem has rationes adducit *Bullialdus*, *Lib. 5. Cap. 2. Aſtron Philolaic.*

Rationes *Iſm. Bullialdi* contra inæqualitatem Punctorum Æquinoctialium, Sex.

1: *Hactenus nullas dari obſervationes veterum, quæ loca fixarum ad amuſſim determinent; temerarium proinde eſſe tam dubio, ſubleſtoq; ſundamento tantam machinam inædificare velle.*

2. *Nullam in Cælo circularem revolutionem per totum ſuum ambitum admittere plures unà inæqualitates, dum in uno ſemicirculo retardatur, in altero promovetur motus; admiſſâ verò inæqualitate revolutionis Præceſſionis Æquinoctiorum* Copernici, *quindecies ferè intenditur & remittitur motus ſimplex: in aliis verò revolutionibus non intenditur niſi ſemel, nec pluries remittitur motus.*

3. *Tam parvam differentiam reperiri motuum fixarum in diverſis temporum intervallis, ut non poſſit illa alicui vero & naturali motui attribui, niſi cum maximâ temeritate & audaciâ, quâ protervitèr nimis cælo intellectus humani figmenta affigimus.*

4 *Quòd immobile foret corpus illud quod à Mundi centro longiſſimè recedit, quod tamen moveri convenit, ſicut alia quæ Solem ambiunt quamvis motu tardiſſimo,*

tardiſſimo, ob immenſam à centro remotionem, ſpatiiq;, quod percurrit, amplitudinem. Sed quæſo cur aliis corpora movebuntur, totum verò Syſtema fixarum immobile manebit? Omni corpori circa centrum mundi conſtituto debetur aliquis motus circa illud, aliàs à natura alienum foret, nec ipſius eſſet particeps, quæ omnia in motu ſervat, & torpeſcere nunquam finit.

5. *Non debemus exiſtimare Stellas fixas in conſequentia progredi κτ᾽ φύσιν ſolum, quia Poli terræ lento gradu in antecedentià revertuntur, ſectioneſq; Æquinoctiorum. Quamvis enim reſpectu fixarum talis Hypotheſis ſtare poſſit, quòd nullum ſit corpus exterius diverſimodè motum cum quo comparari ſenſibiliter poſſit motus fixarum; non tamen eſt admittenda, quâ ratione admitti non debet in Planetarum motibus. Stare tamen poſſet, ſi Sol appareret ſolus. Nam turbinatione annuâ Polorum Terræ, quæ tunc per Zodiacum annuo motu transferri non ſupponeretur, Solis acceſſus & receſſus viderentur. Sed hoc fiat in Sole cæteris Planetis ut ſunt in rerum natura poſitis,* Saturnus *pariter in ♋. poſitus, acceſſus & receſſus reſpectu Verticis præbebit, quod non fit, nam in illo Signo poſitus ſemper propior eſt vertici borealium regionum. Poſſibilis igitur eſſet hæc Hypotheſis, ſi unus eſſet Planeta, ſed cum ſint plures impoſſibilis eſt. At in fixis κτ᾽ φαινόμενον poteſt ſtare ob motûs tarditatem, & quia non ſentitur motus exterior cum quo comparari poſſit; reipſa verò non eſt, nec admitti debet.*

Opinio *Bulliáldi* in hâc re abſurda.

6. *A ſimilitudine ducitur. Cernimus in Luna quandam directionem partium ad terram: veriſimile eſt igitur aliquam eſſe directionem partium terræ ad Solem; & axes Solis & terræ eandem habitudinem inter ſe ſemper retinere, & neutrum turbinare mihi probabile videtur. Motum ergò fixarum fieri motu reali ipſarum circa polos Zodiaci probabilius eſt, quàm illa corpora immobilia manere, quæ à loco quietis, ſeu Mundi centro tàm longè abſcedunt.*

In Lib. 7. Cap. 3. magni operis *Ptolemæi*, multæ obſervationes Stellarum fixarum à veteribus acceptæ, annotantur, ubi *Tymocharis* obſervavit *Pleiades* ad Boream eſſe ab Æquinoctiali gr. 14 30′, quo cognito cum earum latitudine gr. 4 0′. Sept. datur locus *Pleiadum* gr. 27 55′ ♈, quem *Tabulæ noſtræ* tunc dant in gr. 27 54′ 43″. Erat annus *Nabonaſſari* 458.

Spicam Virginis *idem Author* ſuper borealiorem eſſe partem Æquinoctialis gr. 1 24′ annotavit, ut in prædicto *Ptolemæi* loco, fol. mihi 76. manifeſtè illuceſcit; hanc Stellam latitudinem ab Eclipticâ gr. 1 59′ auſtrinam habere *Tycho* perſcrutat, Stellæ igitur locus fuit in gr. 21 59′ ♍, quem *Longomontanus* tum in gr. 22 30′. collocavit, noſtræ verò Tabulæ tantùm in gr. 21 44′ 12″ ejuſdem Signi. Erat hæc obſervatio anno *Nabonaſſari* 455.

Anno *Nabonaſſari 621. Hipparchus Spicam Virginis* obſervavit borealiorem eſſe Æquinoctiali gr. 0 36′. Ergò ſecundum ejus obſervationem locus eſſet in gr. 23′ 59′ ♍, quem *Longomontanus* in gr. 22 30′. tum ſtatuit, *noſtræ* verò *Tabulæ* in gr. 24 3′ 44″ ejuſdem Signi.

Copernicus & *Tycho* ab *Albategnii* obſervationibus colligunt Cor Leonis, anno Chriſti 879. eſſe in gr. 14 5′ ♌, *Lansbergius* attamen fol. 154. Obſervat. Aſtron. eam tum collocat in gr. 14 19′ ♌. & *Longomontanus* in gr. 14 27′ ♌, *Noſtræ* verò *Tabulæ* eam, magis exactè, habet in gr. 14 9′ 25″ ejuſdem Signi.

Tabulæ Perſicæ (quæ nunc in *Bibliothecâ Regis Chriſtianiſſimi* poſitæ ſunt) Fixarum Stellarum anno Chriſti, 1115. rectificatum Catalogum continent, in quo *Cor Leonis* in gr. 17 30′ ♌ poſitum eſt, tantùm Scrup. 1′; à noſtrâ reſtitutione diſcrepans, quæ illam habet in 17° 28′ 28″ ♌.

Deniq; anno Chriſti 1601. ſecundum accuratiſſimas *Tychonis Brahei* Obſervationes, eadem Stella in gr. 14 17′ ♌ annotata fuit, cum latitudine boreâ ab Eclipticâ gr. 0 26′. Ut calculus noſter eam præſcribit.

Juxta nunc has obſervationes, annuum motum, aut potius punctorum Æquinoctialium receſſum, eſſe, ut ſequitur, inveſtigabimus.

Annus

Annuus motus Stellarum fixarum.

	′	″
A *Timocharide* ad *Ptolemæum.*	39	33.
Ab *Hipparcho* ad *Ptolemæum.*	52	31.
A *Ptolemæo* ad *Albategnium.*	50	26.
A *Timocharide* ad *Tychonem*, an. 1601.	49	55.
Ab *Hipparcho* ad *Albategnium.*	51	0.
Ab *Hipparcho* ad *Tychonem.*	50	33.
Ab *Albategnio* ad *Ebenneſophim*	69	18.
Ab *Albategnio* ad *Tabulas Perſicas*	52	7.
Ab *Albategnio* ad Annum 1364.	48	52.
Ab *Albategnio* ad *Tychonem*	50	47.
Ab *Ebenneſophim* ad *Tabulas Perſicas*	46	31.
Ab *Ebenneſophim* ad Annum 1364.	45	5.
A *Ptolemæo* ad *Tychonem*, an. 1601.	52	58.

ProgreſſioFixarum annua ab Aſtronomis obſervata.

Hinc concluſionem habemus, quòd progreſſus Stellarum Fixarum annuus, aut potiùs (noſtrâ ſententiâ) punctorum Æquinoctialium receſſus eſt exactè 50″ 25‴ 55ⁱᵛ &c. Ut in noſtro *Catalogo Obſervat. Aſtron.* magis amplè oſtendemus.

Annuus receſſus Punctorum Æquinoctialium.

CAP. XXIII.

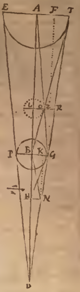
De Magnitudinibus & Semidiametris trium Corporum, Solis, Lunæ, & Umbræ Terræ.

PRiuſquàm ad determinationem Semidiametrorum Solis, Lunæ, & Umbræ terrenæ advenſamus, brevem iſtius rei animadverſionem ſecundum aliorum placita trademus. Primus hujus rei ſcrutator erat *Ariſtarchus Samius* Philoſophus apud Græcos magni nominis & *Mathematicus eximius*, qui vixit 280. annis ante Chriſtum, cujus præclarum opus, de magnitudinibus, & diſtantiis trium corporum, *Solis, Lunæ, & Terræ* adhuc extat. Poſtea ſequutus eſt *Hipparchus*, vir miræ ſagacitatis & peritiæ in Aſtronomiâ, qui *Tractatum peculiarem edidit*, in quo demonſtravit *Magnitudines & intervalla* trium Corporum *Solis, Lunæ, & Terræ*, qui injuriâ temporum periit, tametſi ejus Demonſtratio & Diagramma, diligentiâ & curâ ejus Succeſſorum adhuc aſſervatur, attamen multos inveniemus temporibus eum ſuccedentibus (quamvis Aſtronomiæ valdè peritos) qui perfectam hujus rei cognitionem non habuerunt, ut *Albategnius, Regiomontanus, Copernicus, Tycho Brahæus, Argolus*, & alii, & quanquam *Lonsbergius* in *Uranometriâ* ſuâ ſe ſequi affirmat, tamen ejuſdem uſum non rectè caluit. Ingenioſiſſimus verò *Keplerus* poſt multas & diuturnas vigilias perduxit opus ad optatum finem & *Hipparchi* Demonſtrationem dubiè à *Ptolemæo* traditam enucleatim inſtauravit, ut conſpici poſſit *in Epit. Aſtron. Copern. & in Tabulis Rudolphinis*, quàm amplius in *Hipparcho* ſuo promiſit, qui hucuſq; in manus non advenit. Et tandem *Doctiſs. Bullialdus* in *Aſtronomiâ Philolaicâ*, ſcitè rectum ejus uſum ampliavit, & nos veſtigiis etiam *Keplerianis* adhærentes breviter ſubſequentem hanc Demonſtrationem & Diagramma præmiſimus.

Ariſtarchus Samius fuit Primus hujus rei Scrutator.

Antequam

Antequàm adveniemus ad inveſtigationem veræ quantitatis *Semidiametri Solis, Lunæ*, & Umbræ terrenæ (hoc ut melius cognoſcatis) Diagramma ponam, in quo ſit A centrum Solis, L centrum Lunæ, B Terræ.



Demonſtratio Semidiametrorum Solis, Lunæ, & Umbræ terræ *Hipparchiana.*

HBN Semidiameter Umbræ terrenæ apparens in loco tranſitûs *Lunæ*.

ABT, vel AGT, Semidiameter *Solis* apparens.

AT Semidiameter *Solis* vera.

D Mucro umbræ terrenæ.

BDG Semiangulus Coni umbræ.

BHD Axis umbræ.

LO Semidiameter Lunæ vera.

LBO Angulus apparentis Semidiametri Lunæ.

BAG Angulus Horizontalis Parallaxeωs Solis.

BHG Angulus Horizontalis Parallaxeωs Lunæ.

Poſteà ducantur lineæ NK & GF parallelæ AD ipſi lineæ Axis umbræ, tum ſequitur,

Theoremata tria.

1. I. *Quòd Horizontalis Solis Parallaxis, & Semiangulus Coni umbræ terrenæ ſint æquales apparenti Solis Semidiametro.*

Demonſtratio.

AGT = AGF = FGT = ADT.

In hoc Diagrammate apparens Semidiameter Solis repræſentatur per angulum AGT = ABT, à quo cum ſubtrahatur angulus AGF (æqualis angulo Horizontalis Parallaxeωs Solis BAG) relinquit angulum FGT, quoniam verò lineæ BA & GF ſunt parallelæ, ſequitur ut angulus FGT ſit æqualis angulo BDG, qui eſt Semiangulus Coni.

2. II. *Quòd Semiangulus Coni umbræ terrenæ ſit æqualis differentiæ Horizontalis Parallaxeωs Lunæ & Semidiametri Umbræ.*

Demonſtratio.

BNG = KNG = BNK = HBN.

Exiſtimemus Soli Lunam opponi, Sole tum exiſtente in A & Lunâ in H, quo tempore angulus BHG, aut BNG repræſentat Horizontalem Parallaxin Lunæ, & HBN aut BNK apparentem Semidiametrum umbræ terræ. Ex angulo igitur Horizontalis Lunaris Parallaxeωs ſi auferatur Semiangulus Coni umbræ KNG æqualis angulo ZGR, relinquit angulum KNB, qui eſt æqualis angulo NBH juſtæ apparenti Semidiametro umbræ.

3. III. *Quòd Aggregatum Horizontalis Parallaxeωs Luminarium, ſit æqualis aggregato Semidiametrorum Solis, & Umbræ terrenæ apparentium.*

Demonſtratio.

In Diagrammate, ſit BTN Horizontalis Parallaxis Solis, BNT Horizontalis Parallaxis Lunæ, ABT Apparens Solis Semidiameter, & HBN apparens Semidiameter Umbræ Terræ. Ergò BTN + BNT = ABT + HBN. Si igitur ex aggregato Horizontalis Parallaxeωs Luminarium, auferatur apparens Solis Semidiameter, reſtat apparens Semidiameter Umbræ terrenæ.

CAP.

CAP. XXIV.

Quomodo apparentes Solis & Lunæ Semidiametri aliquo tempore inveniantur.

Semidiameter Solis vera ſemper eſt idem, apparens ſeu viſa continuò variatur, quæ ob inæqualem Solis diſtantiam à centro Terræ, oritur; nam quando Sol propinquior nobis eſt, major apparet, cum autem remotior, apparet minor.

VEræ *Solaris Semidiametri partes*, ut diverſis temporibus nuperrimè examinavimus, ſunt 475. quibus cognitis cum diſtantià ejus à terræ centro, irò obtineamus ejus apparentem Semidiametrum.

Inveſtigatio apparentis ſemidiametri Solis.

Accipiamus *Solem* in ejus *Apogæo*, ubi diſtantia ejus eſt 101796. (qualium Radius Orbis eſt 100000.) tumq; eamus ad Diagramma oppoſitum, ubi in Triangulo Rectangulo A B T repræſentat A B diſtantiam ejus à centro terræ 101786. A T Semidiametrum ejus veram, & A B T angulum apparentis Semidiametri, qui ſic obtineatur.

Per Probl. 4. Triang. Plan. Rect.	B A	101796	5 007730.
	A T	475	2 676694.
	Radius gr. 90.		10 000000.
	Tang. anguli A B T	16′ 2″	7 668964.

Semidiameter Lunæ realis omni tempore eſt idem, apparens autem atq; viſibilis ſemper inæqualis exiſtit, cujus rei cauſa eſt inæqualis Lunæ diſtantia à centro Terræ, ut ſupra diximus in Sole.

Ergò Semidiameter Solis apparens in ejus *Apogæo*, ut repræſentatur per angulum A B T vel A G T (qui inſenſibilitèr inter ſe differunt) eſt 16′ 2″.

Eodem prorſus modo invenitur apparens ejus Semidiameter in Perigæo eſſe 16′ 37″, nam in Triangulo A B T oblato, ex lateribus B A 98220. & A T 475. habetur angulus apparentis ejus Semidiametri A B T 16′ 37″.

Inveſtigatio apparentis Semidiametri ☽.

Apparens Lunæ Semidiameter etiam per eandem doctrinam inveniatur, habens diſtantiam ejus & veram Semidiametrum, quæ juxta obſervationes memetipſius, & aliorum, eſt $18\frac{88}{100}$. Nunc ut rem illuſtremus, imaginemus Lunam eſſe apogæam, aut remotam à terrâ 4224. In Triangulo igitur Rectangulo B L O dantur, latera B L 4224. L O $18\frac{88}{100}$ & angulus L B O quæritur.

Πρᾶξις.	B L	4224.	3, 625724.	Per Probl. 4. Tri. Plan. Rectang.
	L O	$18\frac{88}{100}$	1, 276002.	
	Radius		10,	
	t. L B O	15′ 22″.	7, 650278.	

Eſt ergò Semidiameter Lunæ apparens in remotione ejus maximâ Scrup. 15′ 22″. Quod erat demonſtrandum.

CAP. XXV.

Quomodo apparens Semidiametrus Umbræ terrenæ, omni tempore, reperiatur.

PRimùm inveniatur Semiangulus Coni per *Theorema* 1. hoc pacto.

Umbræ terreſtris Angulus quomodo inveſtigetur.

Si ab angulo apparentis Semidiametri Solis, A G T	16′ 2″.
Subtrahatur Angulus horizontalis ejus Parallaxis, BAG, vel AGF	2 18.
Remanet Semiangulus Coni F G T.	13 44.

Determinatio apparentis Semidiametri Umbræ terræ.

Qui ratione parallelſmi linearum B A, G F erit æqualis angulo A D T, qui eſt Semiangulus Coni umbræ terrenæ, cui angulus K N G eſt etiam æqualis. Per ſecundum tunc Theorema, ſubtrahe Semiangulum Coni ab horizontali *Lunæ* Parallaxi, & relinquitur apparens Semidiameter umbræ, in loco tranſitûs Lunæ.

Modi duo. Prior.

	Πράξις.
Parallaxis *Lunæ* Horizontalis B N G	55′ 44″.
Semiangulus Coni K N G Subtr.	13 44.
Apparens Semidiameter umbræ B N K = H B N	42 0.

Hic angulus etiam obtineatur per Theorema 3. ſubtrahendo apparentem Solis Semidiametrum à ſummâ Solaris & Lunaris parallaxeos Horizontalis, ſic enim remanet angulus acquiſitus.

Poſterior.

	Πράξις.
Parallaxis Solis Horizontalis.	2′ 18″.
Parallaxis Lunæ Horizontalis.	55 44.
Summa	58 2.
Semidiameter Solis ſubtrahenda.	16 2.
Apparens Semidiameter umbræ.	42 0. ut ante.

Umbræ terreſtris Axem & Diametrum apparentem in loco tranſitus Lunæ metiri.

Porrò ut longitudo axis Umbræ terrenæ rectè inveniatur, obſervare oportet, quòd in Triangulo B D G, habetur B G Semidiameter terræ vera $68\frac{1}{2}$; cum angulo B D G 13′ 44″, ergò (per Probl. 1. Sect. 2. Triang. Plan.) dabitur BD 17147. Nam

Ut Radius gr. 90.	10, 00000.
Ad cotangentem anguli B D G 13′ 44″.	12, 39850.
Ita BG $68\frac{1}{2}$.	1, 83569.
Ad longitudinem axis umbræ BD 17147.	4, 23419.

De verâ Semidiametro Umbræ terrenæ inveſtigandâ.

Semidiameter umbræ vera.

Aſſumatur Triangulum Rectangulum B H N, in quo datur angulus H B N Semidiametri umbræ apparentis Scr. 42′ 0″. cum latere B H partium 4224. dabitur ergò Semidiameter umbræ vera, in loco tranſitus Lunæ, H N $51\frac{61}{100}$. Nam.

Per Probl. 1. Plan. Triang. Rectang.	Ut Radius gr. 90.	10,
	Ad Tangentem anguli H B N 42′ 0″.	8, 086997.
	Ita B H 4224.	3, 625724.
	Ad Semidiametrum umbræ veram H N $51\frac{61}{100}$.	1, 712721.

Ex B G Semidiametro Terræ 68. 50. aufer B K = H N 51. 61. & remanet K G 16. 89. Tunc in triangulo N K G ad K rectangulo, ex datis lateribus N K 4224. K G 16. 89, dabitur Angulus K N G, id eſt F G T = A D T 13′ 44″. Data eſt autem *Semidiameter Solis apparens* A G T 16′ 2″, dabitur ergò B A G = A G F differentia angulorum A G T, F G T 2′ 18″, ferè. tantaq; eſt *Parallaxis Solis Apogæi.* Ergò data eſt diſtantia ☉ apogæa 1490.

Semid.

De Magnitudine & Proportione horum trium Corporum.

Proportio ☉, ☽, & terræ ad invicem.

Si Lector ſe informare deſideret de Magnitudine & Proportione horum trium corporum, *Solis*, *Lunæ*, & *Terræ*, multiplicet cubicè terminos ſuarum Diametrorum (quia *Globi* ſunt in triplà ratione ſuarum Diametrorum per ultimam 12. *Euclidis*, vel Semidiametrorum per 19. quinti.) tumq; dividat

majorem

majorem Cubum per minorem, & Quotus ſtatim monſtrabit quantum alter alterum continet. Ut in Sole, Cubus Semidiametri ejus 475 eſt 107171875, & Cubus Semidiametri Terræ 68. 5 eſt 321419. 125. Nunc ſi Cubus Semidiametri Solis dividatur per Cubum Semidiametri Terræ, inveniemus quod *Sol* major ſit *Terrâ* 333 [illegible] Sol verò major eſt Lunâ 15924 [illegible] vicibus, nam Cubus ex Semidiametro Solis eſt gr. 107171875, & Cubus ex Semidiametro Lunæ eſt 6729. 859072, eſt autem hic in illo 15924. [illegible] itaq; Sol major eſt Lunâ 15924 vicibus.

Operatio facilior per Logarithmos.

Semidiameter Solis vera	475.		2, 67669.
Semidiameter Terræ	08. 50.		1. 83569.
		Differentia.	0, 84100.
Sol major eſt Terrâ 333. [illegible]		Tripl.	2, 52300.

CAP. XXVI.

De Eclipſi Solis, ſeu potiùs Terræ.

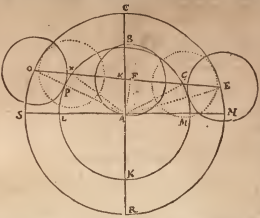
UT nulla pars Mathematicorum tam nobilis *tamq; excellens eſt ut Aſtronomia*, ſic nihil *Aſtronomiæ tam difficile* eſt ad certam, veramq: ejus cognitionem, ut *Solaris Eclipſis*, accedere, cum calculus ejus particulari Terræ loco definitus eſt, propter moleſtam Lunaris Parallaxeos computationem, ob eamq; gratiam aliqui doctiſſimorum Aſtronomorum ad opus facilitandum Tabulas compoſuerunt, ut in *Almageſto Ptolemæi* perſpiciatur, & in his jam-jam præteritis temporibus novas Tabulas diverſis Climatum latitudinibus, *Reinholdus in Prutenicis* inſtituit propter initia uniuſcujuſq; tantùm Signi, quas *Lansbergius* & *Argolus* quàm ſtrictè ſequuntur, quæ admirabiles fuerant ſi id ab eis exactiſſimè effici potuit quod requiritur, ſed nequit ob repentinas *Lunaris Parallaxis* mutationes, ita ut pars proportionalis capta propter intermedios dodecatemorii gradus quàm ſæpiſſimè fallitur, igiturq; (quia à Parallaxi Lunari Solaris Eclipſis principalitèr dependit) veſtigia eorum deſeremus & quomodò eadem per admirabilem Triangulorum doctrinam obtineatur, docebimus. Veruntamen anteà indagationi Lunaris & Solaris Parallaxis, calculoq; Eclipſis ad aliquam particularem terræ tractum veniamus, non abs re erit *generales Phaſes Phænomena* determinare, & demonſtrare quomodò eos terræ locos inveniamus, qui ſubjecti ſunt particularibus ſpeciebus viſibilis Solis corporis Quarè intellige quòd Eclipſis Terræ non impertinentèr *Lunæ Eclipſi* applicetur, cui propinquum analogum & imaginem gerit, ut enim *Luna* tempore Eclipſis ſuæ Solis Splendorem per opaci corporis Terræ interpoſitionem amittit, ſic cum Eclipſin terra patitur, *nos incolæ* ab illuminantibus Solis radiis deprivemur, per Lunæ interpoſitionem inter Solem & nos, ut benè obſervaretur ſi defectus *terræ à Lunâ* perſpiceretur; & propterea hic demonſtrabimus quomodo hinc appareat, quæ hoc in loco generalitèr tractabimus, & quo pacto decernere diverſos illuminatæ Diſci terræ locos oſtendemus ſecundum *Penumbræ* tranſitûs tractum, ſine ullâ Lunaris Parallaxeos inquiſitione, particularem computationem ob aliquem determinatum Terræ locum, referentes ſequenti hujus Libri parti; reſpectuq; generalis hujus rei explicationis hoc Diagramma proponemus *ob Solarem Eclipſin*, 1661. *aptatum*, in quo B L M B repræſentat illuminatum *Terræ* diſcum, A Centrum Diſci, cui puncto Sol eſt verticalis, S L A M N Zodiacum, cujus polus boreus eſt B, auſtrinus K. Sitq; inſuper O P Semidiameter Penumbræ, A P Semidiameter Diſci terræ, A O aggregatum Semidiametrorum, A F Latitudo

Aſtronomiæ Præſtantia.

Quomodò Eclipſis Solis ſit computanda univerſalitèr.

Explicatio Eclipſeos Solaris, modo generali.

Lunæ in medio Eclipſis, & O F E via Lunæ tempore Eclipſis. Nunc ſi aliquis in Lunâ verſeretur, viſibilem Diſcum terræ B L K M B cerneret illuminatum Solis radiis tantummodò præter parvulam Illius partem, quæ *Penumbrâ* obumbrata eſt. Et quandoquidem *Lunæ* latitudo in *Diagraphiâ* per A F repræſentata, minor eſt Semidiametro Diſci A B, monſtrat quòd centrum



umbræ vel Penumbræ *Lunæ* intra Diſcum cadit, ita ut fuerit Eclipſis in *Terrâ* ſecundum Lunaris umbræ ſuper lineam O X F G E tranſitum, ut equidem in medio ejus tantum illuminati *Terræ* Diſci à *Solis* luce deprivabitur, ut intrà notatum Lunaris Penumbræ circulum B D K B complectitur.

A *Lunæ* latitudine A F arcum A F obtineamus, hoc eſt Nonageſimi gradûs diſtantiam A, à loci *vertice* F, ut infra docebitur.

Iterùm ut Terræ punctum Inveniamus, quem Penumbra primùm tangit, ut ad P, Lunæ latitudioem invenire ſumus ad Eclipſis principium, cujus arcus S O in circulo aggregati Semidiametrorum Diſci & Penumbræ accipiendus eſt, cui in Circulo Terræ diſci L P æqualis eſt, hoc eſt diſtantia Nonageſimi gradûs L à vertice loci P, cujus complementum eſt Nonageſimi gradûs Altitudo, cum quâ Orientis anguli tabulam ingredere, quærendo Signum & gradum Aſcendentis, aut ad Siniſtram, aut dextram, tumq; totam lineam percurre donec propoſitæ altitudini venietis, ubi infrà aut ſupra tabulam, poſita eſt quæſita latitudo loci Septentrionalis, illicq; Aſcenſio recta *Medii Cæli*, &c.

Tab. ſol. 68. & Seq.

Monitum Reineri utile.

Verùm ſi in alterutra phaſeωn inventa fuerit Altitudo Poli, non Arctici, ſed Antartici, tunc Aſcenſioni M. C. Tabularum, adde grad. 180. & aggregato ſubtrahe Aſcenſionem Rectam Meridiani prioris, ut nota fiat differentia Meridianorum

Verùm ſi hæc Nonageſimi gradûs altitudo in totâ lineâ per omnes tabulæ paginas non invenienda eſt cum denominatione ejus propoſitâ (quæ latitudini Lunæ eſt contraria) argumentum eſt quòd Polus auſtralis elevatur, cujus altitudo tum per oppoſitum Aſcendentis gradum acquiretur, & per Nonageſimi gradûs altitudinem, eandem quantitate, ſed denominationis jam contrariæ.

Eodem modo, ex latitudine Lunæ datâ ad principium ingreſſûs centri Penumbræ ſuper Terræ diſcum, invenitur L X, arcus diſtantiæ Nonageſimi gradûs à vertice, illicq; loci latitudo; & deniq; centri umbræ, totiuſq; Penumbræ egreſſus ad eundem modum acquiritur.

Inſuper totalis durationis tempus aggregato Semidiametrorum Diſci Terræ & Penumbræ, latitudineq; *Lunæ* adipiſcitur, nam in triangulo A F O datis A O & A F, illic acquiruntur ſcrupula dimidii univerſalis durationis F O,

FO, cujus duplum OE ſunt Scrupula univerſalis durationis Eclipſeos.

Porrò, ex Diſci Semidiametro, AX, & latitudine Lunæ AF, inveniuntur XF, dimidii centralis durationis ſcrupula, cujus duplum XG totius centralis durationis ſunt Scrupula.

Cum Eclipſis eſt, & tùm utrum tota penumbra, aut tantùm pars ejus cadit in Terræ diſcum cognoſcatis, duos ſequentes Canones obſerva.

Reg. I.

Si veræ latitudinis Lunaris & Semidiametri Penumbræ aggregatum minus ſit Semidiametro Diſci Terræ, tùm intrà Diſcum, tota Penumbra continetur.

Reg. II.

Sed ſi veræ Latitudinis Lunaris & Semidiametri Penumbræ idem aggregatum majus ſit Diſci Semidiametro, tum Penumbræ pars extra Terram cadit & in aere conſumet.

Primo Canone, Septem Phaſes inquiri poſſunt.

1. Locus Terræ cui *Sol* exoriens ſtringi à *Lunâ* incipit.
2. Locus Terræ cui *Sol* exoriens totus tegitur.
3. Locus ille cui *Sol* exoriens ab interventu Lunæ liberatur.
4. Locus in quo, Synodus vera cum viſâ in 90°. gradu Eclipticæ celebratur.
5. Locus Terræ cui *Sol* occidens primùm à *Lunæ* interventu ſtringitur.
6. Locus is terræ cui *Sol* totus tectus, ſeu centralitèr Lunæ junctus occidit.
7. Ille Terræ locus cui Sol occidens deficere deſinit.

Canone Secundo; *Si quando Centrum Penumbræ in Diſci oram, vel extra cadit, tertia & quinta non inveniuntur.*

CAP. XXVII.

Exemplum calculi Eclipſeos Solis (modo generali) juxta doctrinam præcedentem.

ANno Chriſti 1661. die 20 *Martii*, ante Meridiem contigit Eclipſis Solis, quam magnâ curâ & ſedulitate per ejus totum decurſum obſervavimus *Luffenhamiæ*, ut infra in *Appendice* lectoribus apparebit.

		Dies	ho.	′	″.
Tempus medium veræ ☌ dant Tabulæ noſtræ Londini,	Martii.	19	21	40	28.
Locus Solis & Lunæ verus.		♈	10	13	48.
Anomalia Eccentri Solis media.		9	1	25	45.
Anomalia Eccentri Lunæ media.		6	27	54	4.
Argumentum veræ latitudinis Lunæ à ☊.		5	23	22	7.
Ipſa latitudo Lunæ vera Borealis Aſcendens.				34	36.
Reductio ad Eclipticam add.				1	37
Tempus Reductionis Subtr.				2	46.
Tempus exaratum veræ ☌	Mart.	19	21	37	42.
Æquatio temporis add.				3	21.
Tempus apparens veræ ☌ Londini.	Mart.	19	21	41	3.
Horarius motus Solis.				2	28.
Horarius motus Lunæ.				37	31.
Semidiameter Solis.				16	19.
Semidiameter Lunæ.				16	40

Proceſſus Calculi Eclipſeos ☉.

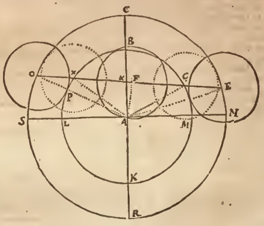
Semidia-

	D.	H.	′	″.
Semidiameter Diſci Telluris, quæ æqualis eſt differentiæ Horizontalis Parallaxeωs Solis & Lunæ.			58	6.
Semidiameter Penumbræ = aggregato Semidiameter ☉ & ☽.			32	59.
Aggregatum Semidiametrorum.	gr.	1	31	5.

In hoc Paradigmate, quia ſumma veræ latitudinis Lunæ & Semidiametri Penumbræ ſit major Semidiametro Diſci Terræ, pars ergò Penumbræ in ætherem abit.

Determinatio totius Durationis.

In Diagrammate præcedenti hic retento, ſit O E menſura ſcrupulorum totius durationis, & G X Scrupula centralis durationis. Quoniam jam in Triangulo Rectangulo A F O, dantur A F Latitudo Lunæ Septentrionalis 34′ 36″ & A O Summa Semidiametrorum Diſci Terræ & Penumbræ conjunctarum gr. 1. 31′ 5″, itaq; dabuntur O F Scrupula dimidiæ durationis 84′ 15″, cujus duplum O E oſtendit Scrupula totius durationis.



Illuſtratio per Numeros Logar.

Scrupula dimidiæ durationis rectè inveniri poſſint per Probl. 1. Triang. Sphæric. Rect.

Summa Semidiametrorum A O	5465.		
Latitudo Lunæ A F	2076.		
Summa	7541.	3, 87743.	
Differentia	3389. .. .	3, 53007.	
		7, 40750.	Aggregatum.
Scrup. dimid. durat. F O 5055″. id eſt 84′ 15″.		3, 70375.	Semiaggregat.

Deinde ut colligantur Scrupula dimidiæ centralis durationis, habemus in Triangulo A F X (1.) A F Latitudinem Lunæ veram 34′ 36″ (2.) A X Semidiametrum Diſci Terræ 58′ 6″. Ergò juxta præcedentem Methodum inveniuntur Scrupula dimidiæ centralis durationis X F 46′ 40″. Diviſâ itaque X F per horarium, colligemus tempus dimidiæ centralis durationis, Hor. 1 19′ 53″. Eſt igitur

Exoriente

		Ho. ′ ″.
Exoriente Sole	*Initium*	19 16 50.
	Centralis Eclipſis	20 21 10.
In Gr. Nonageſimo	+ *Centralis Eclipſis*	21 41 3.
Occidente Sole	*Centralis Eclipſis*	23 0 56.
	Finis	0 5 16.

I. *Determinatio loci Terræ, ubi Sol centralitèr deficit in ipſo gradu Nonageſimo.*

	Gr. ′.
Tempus datum *Londini* in gradibus	325 16.
Aſcenſio Recta Medii Cœli	334 40.
Latitudo Lunæ vera Septentrionalis deſcendens	34′ 36″.

Ex Semidiametro diſci Terræ A B 58′ 6″ & Latitudine Lunæ A F 34′ 36″ datur arcus A F gr. 36 33′, cujus complementum gr. 53 27′ menſurat Altitudinem Nonageſimi ſupra Horizontem.

Sinus Semidiametri diſci Terræ A B 58′ 6″.	8, 22788.
Arcus A B gr. 90.	10. 00000.
Sinus Latitudinis Lunæ, A F 34′ 36″.	8, 00280.
Arcus A F gr. 36 33′.	9, 77492.

In Tabula Anguli Orientis quæro Altitudinem Nonageſimi gr. 53 27′. quando gr. 10 14′ ♋ eſt in Ortu, & illi reſpondet latitudo loci Borea gr. 37 8′.
Aſcenſio obliqua Aſcendentis gr. 10 14′ ♋ ſub illà Elevatione datur 82 17.
Aſcenſio Recta Medii Cœli. 352 17.
Diſtat ergò Meridianus ille à Meridiano *Londinenſi* ad ortum. 17 37.
In longitudine itaq; Terræ gr. 41 57′ & latitudine Poli loci Borealis gr. 37 8′ incidit Conjunctio vera & centralis in ipſo gradu Nonageſimo Eclipticæ.
Totalis Igitur Eclipſis In Ipſo Nonageſimo continget,
In Mari Mediterraneo, Cicilia, inter Maltam, & Septentrionalem Barbariæ partem.

II. *Determinatio loci Terræ, ubi Sol oriens ab Occidentali Margine incipit deficere.*

	gr. ′.
Tempus datum *Londini* in gradibus	289 12.
A. R. M. C.	298 30.
Latitudo Lunæ borea S O	42′ 24″.
Sinus ſummæ Semid. Diſci & Penumbræ S C gr. 1 31′ 5.	8, 42311.
Arcus S C gr. 90.	10, 00000.
Sinus Latitudinis S O 42′ 24″.	8, 09108.
Arcus S O gr. 27 45′. Ergò erit altitudo Nonageſimi gr. 62 15.	9, 66797.
Horoſcopus.	♈ 10 14
Elevatio Poli Borei.	4 33.
Aſcenſio Obliqua Horoſcopi.	9 4.
Aſcenſio Recta Medii Cœli.	279 4.
Differentia longitudinis à *Londino* ad occaſum.	19 26.
Ergò Longitudo loci quæſita.	4 54.

Locus eſt in Mari Del Nort, prope C. de Varga, non procul ab occidentali parte Africæ.

3. *Determi.*

3. Determinatio loci Terræ ubi Sol centralitèr deficit in ipſo ortu, in principio totalis defectûs.

		gr.	'.
Tempus *Londini* in grad.		305	17.
Aſcenſio Recta Medii Cœli		314	38.
Latitudo Lunæ borea.		38'	56".
Sinus L B 58' 5".	8, 22788.		
Arcus L B gr. 90.	10, 00000.		
Sinus L X 38' 56".	8, 05404.		
Arcus L X gr. 42 4'.	9, 82616.		

Cujus Complementum gr. 47 56' erit Altitudo Nonageſimi, quæ eſt contraria denominationi Latitudinis Lunæ, vergitq; in Auſtrum.

	gr.	'.
Tot gradibus elevatur gr. 10 14' ♑ in gradu Nonageſimo ſub Elevatione Poli Borei.	18	48.
Horoſcopus gr. 10 14' ♈, cujus Aſcenſio Obliqua erit	8	1.
Aſcenſio Recta M. C.	278	1.
Diſtat itaq; locus à Meridiano *Londinenſi* ad Occaſum in grad.	36	37.
Ergò datur Longitudo loci Terræ.	347	43.

Locus rurſum eſt in Mari Del Nort, ſupra Inſulas Heſperides, & infra tropicum Cancri, in Inſulis S. Vinceotii, *S.* Lucia, *de* Fago, *S.* Antonio, *&c.*

4. Determinatio loci Terræ, ubi Sol centralitèr deficit in ipſo occaſu, in fine totalis Defectus.

	gr.	'.
Tunc fuit tempus *Londini* in grad.	345	14.
Aſcenſio Recta Medii Cœli.	354	41.
Latitudo Lunæ Borea M. G.	30'	17".
Ergò ſecundum antecedentem Methodom datur Altitudo 90mi.	58	35.
Horoſcopus.	♎ 10	14.
Altitudo Poli Borei.	54	21.
Aſcenſio obliqua Horoſcopi.	195	5.
A R. Medii Cœli.	105	5.
Diſtat ergò Meridianus ille à *Londinenſi* ad Ortum.	110	24.
Itaq; dabitur longitudo loci.	134	44.

Locus eſt orientali parte Tartariæ, *prope* Ochardum *fluminum*, Colmak, Tangut, *perq; medias Sinas, verſus Oceanum* Tartaricum.

5. Determinatio loci Terræ, ubi Sol occidens, ab orientali parte deſinit deficere.

	gr.	'.
Tempus datum *Londini* in grad.	1	19.
Aſcenſio Recta Medii Cœli.	10	49.
Latitudo Lunæ vera Septentrionalis deſcendens.	26'	48".
Dat arcum N E gr. 17 17' cujus complementum eſt Altitudo Nonageſimi ſupra Horizontem.	72	53.
Horoſcopus.	♎ 10	14.
Altitudo Poli Borei.	40	11.
Aſcenſio obliqua Horoſcopi.	192	50.
A. R. Medii Cœli.	102	50.
Diſtat Itaq; Meridianus à *Londino* ad ortum	92	1.
Datur ergò longitudo terræ.	116	21.

Locus igitur eſt in Auſtrali parte Tartariæ, *prope* Indos, *non procul à* Magu, Corazan, Bramas, *& ad Auſtrum à Turri lapideâ, &c.*

CAP.

CAP. XXVIII.

De Calculo Eclipſis Solaris ad certum aliquem Terræ locum.

IN prædictâ Eclipſi *Solis*, accidit vera *Luminarium* Conjunctio Hor. 21 41′ 3″ *Londini*, quo momento, reperitur Parallaxis Longitudinis ☽ à ☉ Scrup. 1′ 53″, & motus ☽ à ☉ viſus in quadrante Horæ præcedentis Conjunctionem veram Scr. 7′ 4″, per quem diviſâ Parallaxi longitudinis tempore veræ ☌ datur intervallum inter veram & viſam ☌ 4′ 0″. ſubtrahendam: Ergò *viſa Synodus Luminarium* contingit *Londini* die 19 *Martii*, Hor. 9 37′ 3″. ante Meridiem. Ad hoc tempus Latitudo *Lunæ* vera fuit inventa 34′ 49″ Sept. Deſcend. & Parallaxis Latitudinis 48′ 6″. In Auſtrum, ex quibus, ſi auferatur latitudo Lunæ, remanet Latitudo viſa 13′ 17″ Auſtrina, quæ ablata è ſumma Semidiametrorum ☉ & ☽ 32′ 59″, relinquit Scrupula deficientia 19′ 42″, quæ diviſa per Solis Diametrum, efficiunt gr. 36 13′ 14″, qui Quotus in 12. partes ductus præbet quantitatem Deliquii *Solis*, Dig. 7. 14′ 38″.

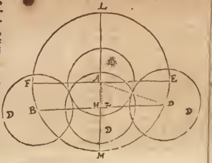
Reductio hujus Eclipſeos ad Horizontem *Londinenſem.*

Scrupula deficientia.

Digiti Eclipſici.

Tandem ut inquirantur *Scrupula Incidentiæ*, ſeu *Caſus*, hoc Diagramma oculis ſubjiciemus, ubi ſit AE Summa Semidiametrorum Solis & Lunæ 32′ 59″, A Z Latitudo Lunæ viſa tempore medii Eclipſis 13′ 17″.

In Triangulo itaq; Rectangulo A Z D, ex datis A D 32′ 59″, & A Z 13′ 17″, datur Z D 30′ 11″, per *Trigonometriæ* Lib. 2. Cap. 2. Prob. 7. in hunc modum.



Scrupula Incidentiæ ſunt arcus viæ Lunaris, quem ipſa motu longitudinis à Sole perambulat, ab initio Eclipſis ad medium.

Praxis.

A D	1979.	Summa	2776.	3, 44342.
A Z	797.	Differentia	1182.	3. 07263.
			Aggregatum	6, 51604.
Z D	1811.		Semiaggreg.	3, 25802.

Ratio inquirendi Scrupula Incidentiæ è Geometricis fundamentis.

Hinc erunt Scrupula Incidentiæ 30′ 11″, quæ diviſa per motum Lunæ à Sole viſum, unâ horâ ante Conjunctionem viſam 28′ 55″, efficiunt tempus Incidentiæ, Hor. 1 2′ 37″. Eadem Scrupula itidem diviſa per motum horarium, unâ horâ poſt viſam Conjunctionem 27′ 31″, dant tempus Repletionis, Hor. 1 5′ 50″, & totam durationem, Hor. 2 8′ 27″.

Tempus Incidentiæ eſt illud ipſum temporis ſpatium, quo Luna peragrat Scrupula illa incidentiæ.

CAP. XXIX.

De Calculo Eclipſis Lunaris.

Eclipſis ☽ quæ. Tria Eclipſium Lunarium genera. 1. Partialis. 2. Totalis ſine morâ in tenebris. 3. Totalis cum morâ.

ECliplis Lunaris eſt privatio luminis Lunæ, quæ fit in Diametrali amborum Luminarium Oppoſitione, propter corpus Terræ interpoſitum: Eſtq; partialis, totalis ſine morâ, & totalis cum morâ, ceu manſione in umbrâ Terræ. Hæc genera, ſeu ſpecies Eclipſium ordine Exemplis explicabo.

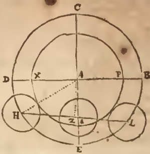
Eclipſis ☽ anni 1659. partialis.

Exemplum. 1. Accidit Lunæ Defectus Anno Chriſti 1659. die 26 *Aprilis*, Hor. 7 52′ 30″, reſpectu veræ Oppoſitionis Luminarium, cujus Deliquii magnitudinem & tempus computare volumus.

Verus locus Solis tunc erat in gr. 16 8′ 29″ ♉, & locus Lunæ in gr. 16 8′ 29″ ♏, cum latitudine auſtrinâ 38′ 51″, Semidiameter Lunæ erat 16′ 38″, Semidiameter umbræ Terræ 46 30″, Aggregatum ex utroq; 63′ 8″, ex quo demptâ Lunæ Latitudine, relinquitur pars deficiens 24′ 17″, quæ diviſa per Diametrum Lunæ 33′ 16″, efficit quotum gr. 43 47′ 51″, qui in 12. ductus, conſtituit Digitos Eclipticos 8 45′ 34″. Conſtat igitùr non totum Lunæ corpus deficere, ſed Eclipſis ſolummodò eſt partialis.

Scrupula Incidentiæ, ſeu caſus quæ?

Scrupula Incidentiæ, ſeu caſus ſunt arcus viæ Lunæ quem ipſa proprio motu à Sole perambulat à principio Eclipſis ad medium ejuſdem. Ut in hoc Schemate, ubi Luna conſtituta in L incipit primò deficere: in H autem deſinit, ſed in Z eſt medium Eclipſis, ſeu Maxima Obſcuratio; ergò HZ = ZL ſunt Scrupula Incidentiæ, quæ ita habebuntur, per Probl. 1. Triang. Sphær. Rect.



Modus inveniendi Incidentiæ ſcrupula.

Ut coſinus Latitudinis Lunæ, ad Radium; ita Coſinus Summæ Semidiametrorum, ad Coſinum Scrupulorum Incidentiæ.

Illuſtratio Arithmetica.

Summa Semidiametrorum gr.	1 3′ 8″.	cs. 19, 99992675.	Rad. add.
Latitudo Lunæ	38 51.	cs. 9, 99997226.	
Scrupula Incidentiæ	49 46.	cs. 9, 99995449.	

Alitèr per *Probl. 7. Triang. Plan. Rectang.*

AH 3788″. Summa Semidiametrorum Lunæ & Umbræ terrenæ.
AZ 2331. Latitudo Lunæ.

Summa 6119. 3, 78668.
Differ. 1457. 3, 16346.
Aggr. 6, 95014.

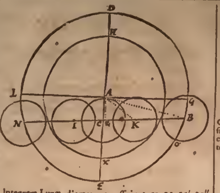
HZ 2986″. . . . . 3, 47507. Scrupula Incidentiæ. 49′ 46″.

Motus horarius Lunæ à Sole verus eſt 34′ 49″, per quem ſi Scrupula Incidentiæ dividantur, emergit tempus Incidentiæ Hor. 1 25′ 45″, & tota duratio Hor. 2 51′ 30″.

Eclipſis ☽ anni 1664. totalis.

Exemplum 2. Anno Chriſti 1664. die 27 *Julii*, Hor, 11 34′ 28″, contigit Eclipſis Lunæ totalis cum morâ, aut manſione in Umbrâ, dum tenet gr. 14 54′ 33″ ♒, ſita ex adverſo Solis, ubi Semidiameter ejus apparens AZ erat 15′ 25″, Semidiameter Umbræ AX 42′ 6″. Aggregatum ex utroq; AE = AB 57′ 31″, Latitudo Lunæ vera AZ 15′ 25″, quæ ablata ex

Aggregato



Aggregato Semidiametrorum relinquit partem deficientem 42′ 6″. Cum igitur hæc ſuperet Diametrum Lunæ 30′ 50″, non modò eſt totalis Eclipſis, ſed etiam cum morâ in tenebris, & major foret duodecim Digitis, quare primùm Diametro Lunæ 30′ 50″, detracti, è Semidiametro Umbræ 42′ 6″, relinquitur adhuc 11′ 16″, quæ diviſa per Integram Lunæ diametrum, efficiunt gr. 21 55′ 27″, quod productum per 12. digitos multiplicatum, oſtendit Digitos 4 23′ 5″, qui prioribus 12. additi, magnitudinem hujus Deliquii Lunæ Dig. 16 23′ 5″, oſtendunt.

Quando Eclipſis eſt totalis cum morâ in tenebris.

In eodem Diagrammate ſit A centrum umbræ, G A L Ecliptica, A C E Circulus Latitudinis, B Z N via Lunæ, C locus Lunæ in verâ Oppoſitione, & Z ejus locus in maximâ obſcuratione, A B Summa Semidiametrorum, B Z Scrupula Incidentiæ & Moræ dimidiæ ſimul, B K Incidentiæ, K Z Moræ dimidiæ, quæ omnia hoc pacto inveniuntur.

1. Pro Scrupulis Incidentiæ & Moræ dimidiæ inveniendis B Z.	2. Pro Scrupulis Moræ dimidiæ K Z inveſtigandis.
A B 3451″. Summa Semidiametr.	A K 1601″. Differentia Semid.
A Z 925. Latitudo Lunæ.	A Z 925. Latitudo Lunæ.
Summa 4376. 3, 64108.	Summa 2526. 3, 40243.
Differ. 2526. 2, 40243.	Differ. 676. 2, 82994.
Aggregat. 7, 04351.	Aggregat. 6, 23237.
BZ 3325. vel 55′ 25″ Semiag. 3, 52175.	ZK 1307″, vel 21′ 47″ Sem. 3, 11618.

Scrupula Incidentiæ, ſeu ἐμπτώσεως, ſunt, quæ ☽ à ☉ peragrat ab initio defectûs ad medium. Ἐξάκοος ἡμίσεος τῆς μονῆς.

Ergò dabuntur Scrupula Incidentiæ & Moræ dimidiæ ſimul 55′ 25″, quæ diviſa per motum horarium Lunæ à Sole 27′ 27″, dant tempus Incidentiæ, ſeu dimidiam durationem Defectûs, Hor. 2 1′ 9″. Scrupula Moræ dimidiæ ſunt 21′ 47″, quæ itidem diviſa per motum Lunæ à Sole horarium, efficiunt tempus Moræ dimidiæ in umbrâ Terræ, Hor. 0. 47′ 37″.

Scrupula moræ dimidiæ ſunt ea, quæ à Sole percurrit Luna ab initio totius immerſionis ad medium tempus Eclipſis.

CAP. XXX.

De Intervallo temporis à verâ Oppoſitione, vel Conjunctione cum Sole, ad Maximam Obſcurationem.

Contingit medium Eclipſis quando Centrum Lunæ eſt vel junctum centro umbræ, vel incidit in perpendicularem illam ex centro umbræ, vel Solis, in viam Lunæ ductam. Ut in primâ figurâ Eclipſeos Lunæ, quando centrum Lunæ I in A Z incidit.

Intervallum veræ ☌ vel ☍ à maximâ obſcuratione.

Maxima Obſcuratio (ſeu Medium Eclipſeos) fit eo momento, quo ex umbræ centro duci poteſt Perpendicularis ad viam Lunæ; hæc eſt enim breviſſima linea, quâ Lunæ centrum maximè accedit ad centrum Umbræ, niſi Plenilunium fiat in Nodis.

In primo Exemplo Eclipſis Lunæ Anni 1659. *Aprilis* 26. quoniam inventa eſt Latitudo Lunæ 38′ 51″, & diſtantia loci veræ Oppoſitionis à Nodo Boreo gr. 7 26′ 55″, erit igitur Angulus A I H gr. 85 3′ 35″.

Diſtantia Lunæ à Nodo gr.	7 26′ 55″.	t.	19, 11641.	Rad. add.
Latitudo Lunæ vera	38 51.	s.	8, 05311.	Subtr.
Angulus A I H	85 3 35.	t.	11, 06330.	

Tùm in Triangulo Rectangulo A Z I, ex datis A I 38′ 51″, & A I Z gr. 85 3′ 35″, dabitur (*Per Cap. 2. Probl. 2. Trigonometriæ noſtræ*) Z I 3′ 21″ pro diſtantiâ maximi Defectûs à verá Oppoſitione, quæ diviſa per Horarium Motum, oſtendit Intervallum temporis 5′ 47″, quod eſt addendum tempori veræ Oppoſitionis. quoniam Latitudo Lunæ eſt Merid. Deſcend. Contingit ergò in noſtrâ Eclipſi, Medium Eclipſis, ceu Maxima Obſcuratio, Hor. 7 58′ 17″, Ergò

	Hor.	′	″.
Initium Eclipſis	6	32	32.
Medium	7	58	17.
Finis	9	24	2.

In alterâ Eclipſi Anno 1664. die 27 *Julii*, Intervallum inter veram Oppoſitionem & Maximam Obſcurationem erit ex Doctrinâ præcedente 2′ 54″. ſubtrahendum, quocirca medium Eclipſis contigit *Londini* Hor. 11 23′ 14″.

Ergò ita habuerunt hujus Eclipſeos phaſes.

	Hor.	′	″.
Initium Londini	9	22	7.
Initium totalis Obſcurationis	10	35	37.
Medium	11	23	14.
Recuperatio Luminis	12	10	51.
Finis	13	24	21.

Typus prioris Eclipſeos Lunæ ad Diem 26 Aprilis, Anno 1659. Hor. 7. 58′ 17″.

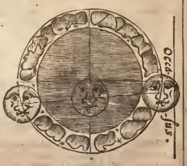
Typus poſterioris Eclipſeos Lunæ ad Diem 27 Julii, Anno 1664. Hor. 11 23′ 14″.

Septentrio.



Meridies.

Septentrio.



Meridies.

CAP.

CAP. XXXI.

De Magnitudine & Proportione quinq; Planetarum, Saturni, Jovis, Martis, Veneris, & Mercurii.

QUanquam *veteres Aſtronomi* ex falſis ſuppoſitionibus, magnitudines & diſtantias, non ſolùm Stellarum errantium, ſed inerrantium ediderunt, attamen ex neotericorum obſervationibus, mediante *Teleſcopio*, multò minores ac veriores deprehenduntur, quàm vulgò habeantur; itaq; inter Aſtronomos recentiores, *Martinus Hortenſius* ex Obſervatione *Mercurii* in *Sole* à *Gaſſendo* facti; & quibuſdam aliis admonitus, ſtatuit apparentes Stellarum Errantium diametros in mediâ diſtantiâ eſſe, *Saturni* 37″, *Jovis* 50″, *Martis* 36″, *Veneris* 53″, *Mercurii* 19″. At nos non ſolùm ex iſtâ animadverſione, ſed & aliis obſervationibus cæterorum Planetarum nuper factis, apparentes & veras ſingularum Stellarum errantium Semidiametros & magnitudines, ita determinabimus. Diametri Planetarum apparentes.



Ex omnium Seculorum Obſervationibus deprehenſus à nobis eſt Radius Orbis *Saturni* eſſe ad Radium magni Orbis Terræ, ut 952500. ad 100000.

Sit itaq; in Schemate appoſito, D Terra, H centrum corporis Planetæ, DH diſtantia Planetæ à Terra, HR vel HS Semidiameter Planetæ vera, & deniq; SDH Angulus apparentis Semidiametri Planetæ ut apparet in Terrâ. Ergò in Triangulo Rectangulo DHR, datur latus DH (in Saturno) 952500. cum angulo HDR 0′ 15″, itaq; per Trigonometriam noſtram, dabitur HR Semidiameter Saturni vera 69 29. Vera Semidiameter Planetæ, quid, & quomodò inveniatur. Probl. 1. Triang. Plan. Rectang.

At quoniam *Globi* ſeu *Sphæra* ad invicem in triplici ſunt ratione propriorum Dimetientium, per ultimam XII. Euclidis, vel Semidiametrorum per 19. quinti; nam ut totum ad totum, ita ablatum ſe habuerit ad ablatum; itaq; ut Cubus ex Semidiametro Terræ ad Cubum è Semidiametro Stellæ errantis, ita Globus Terræ ad Globum Stellæ

Exempli gratiâ. Cubus ex Semidiametro Saturni eſt 332668 & Cubus ex Semidiametro Terræ 321419. Eſt autem hic in illo 1 $\frac{11}{321}$. Saturnus igitur major eſt Terrâ.

Operatio per Logarithmos. Facilior eſt operatio per Logarithmos juxta Cap. 24. hujus Libri.

Semidiameter ♄ vera	69 29.	1. 84067056.
Semidiameter Terræ	68 50.	1. 83569057.
	Different.	0. 00497999.
♄ major terrâ 1 $\frac{011}{1000}$.	Tripl.	0. 01493997.

Eodem prorſus modo, inveniuntur veræ aliorum Planetarum Semidiametri, quas brevitatis cauſâ, in hanc Tabellam exhibebimus.

Semid.

Proportio Planetarum ad Terram.

	Semid. appar. in mediâ diſt. ′	″	Semid. veræ Part.		Proportio Planetarum ad Terram.		
♄	0	15	69	29	1	03.	Major Telluris corpore.
♃	0	20	50	55	24	88.	Minores Terrâ.
♂	0.	8	5	90	1565	67.	Minores Terrâ.
♀	0	12	5	82	1630	46.	Minores Terrâ.
☿	0	8	3	88	5502	76.	Minores Terrâ.

Sed hâc de re nimis multa.

Planetarum Diameter apparens quomodo inveſtigetur.

Apparens Diameter alicujus Planetæ citò inveniţur ex verâ Semidiametro, & diſtantiâ datâ. Nam in Triangulo Rectangulo D H R, ex datis, D H diſtantia Planetæ à Terrâ, & Semidiametro verâ H R, datur Angulus apparentis Semidiametri, H D R.

Supponatur *Mars* in Solis Oppoſitione habens diſtantiam à Terrâ 52040. ergò in Orthogonio D H R dantur D H 52040, H R 5. 90. datur itaq; Angulus apparentis Semidiametri Martis R D H 0′ 24″. ac proindè Diametri ejus apparens 0′ 48″. Eadem methodus valet in reliquis.

THEORIARUM PLANETARUM

FINIS.

TABULÆ NOVÆ
ASTRONOMICÆ.

Liber Quintus.

In quo Cœleſtium Motuum *Tabulæ*, cæteris quas Prelum hactenùs exaraverit, longè emendatiores, elimatioreſq; continentur.

Ex quibus omnium Stellarum errantium & inerrantium, veri & apparentes motus ad quodvis tempus præteritum aut futurum, mirâ facilitate colligantur, juxta Hypotheſin *Copernicanam.*

Obſervationibus accuratiſſimis prænobilis Dani *TYCHONIS BRAHÆI* congruentes, Phænomeniſq; omnium temporum conſentientes.

Secundum Longitudinem inclytiſſimæ Urbis *LONDINI.*

AUTHORE

VINCENTIO WING Mathematico.

LONDINI,

Typis *J. M.* pro *G. Sawbridge* 1669.

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Præcepta Calculi

MOTUUM COELESTIUM EX TABULIS.

Præceptum primum.

De Epochis, Æris, ſeu Cœleſtium Motuum initiis ad aliquot notabilia Tempora; atq; de æquando tempore ob varietatem Meridianorum.

EPocha ſive *Radix* eſt punctum quoddam temporis, cui *Aſtronomi* uſitatè *medium motum* applicare ſolent, à quo ſuccedentes Revolutiones Cœleſtium motuum computantur. Et quamvis permultæ ſunt in uſu Epochæ, nihilominùs ſatis judicavi hiſce Tabulis præcipuas vobis tradere, ex quibus motus medius citiùs inveniatur pro tempore aliquo, præterito aut futuro, vel ſecundum computationem Ægyptiacam vel Julianam, ut demonſtrabitur in 3. Præcepto; in cujus poſitione applicui Epocham Julianam diei pridianæ Calendarum *Januarii*, & Meridiano *Londini* adaptavi: Ægyptiaca autem Epocha concinnatur Meridiano diei proximè præcedentis Menſem *Thoth*, accommodata inſuper *Horizonti Londinenſi*, cujus Longitudo eſt gr. 24 20′ Latitudo gr. 51 32′.

Epocha quid.

Omnis motus metitur à Radice.

Meridianus *Londini.*

Ut verò eandem Epochen faciliùs alicui Meridiano reducatis & Tabulas quaſi univerſales faciatis, Catalogum urbium vobis dedimus, per quem, & *Altitudo Poli*, & *differentia Meridiani* à *Londino* perquiſita eſt.

Reductio motûs medii in Radice ad aliquem alium terræ Meridianum.

Suppone Radicem medii motûs Lunæ à Sole, Sig. 3. gr. 24 31′ 57″. reducendam eſſe ad Meridianum *Uraniburgi*, quæ in *Catalogo* invenitur jacere 52′ à *Londino* verſus Orientem, contrario igitur titulo ſubtrahe motum 52′ reſpondentem, viz. 26′ 25″. & reliqua Sig. 3. gr. 24 5′ 32″. eſt Epocha Chriſti in Meridiano *Uraniburgi*.

Tabb. fol. 69.

In tempore verò Conjunctionum, Eclipſium, & Aſpectuum Planetarum, ſemper applica tempus inventum in Catalogo tempori conceſſo *Londini*, ſic habebis tempus reductum.

Reductio temporis ob differenciam Meridianorum.

Veluti in Eclipſi Lunari Anno Chriſti 1659 *Aprilis* die 26 ho. 7 58′ 20″. *Londini*, quam lubentèr reducerem ad meridianum *Uraniburgi*, quærens autem in Catalogo locorum, invenio differenciam Meridianorum 52′. quæ ſecundum titulum ſuperaddita, faciunt hor. 8. 50′ 20″. pro tempore apparitionis *Uraniburgi*.

Fol. 69.

Poſtremò. Si propoſitum ſit tempus alicujus loci, reducere ad *Meridianum Londinenſem*, applica differentiam cum contrario titulo. Veluti in Exemplo præcedente, ubi à tempore *Uraniburgi*. hor. 8. 50′ 20″. deduco 52′. & de tempore *Londini* reſtant hor. 7. 58′ 20″.

Præceptum Secundum.

De Converſione temporis in Dierum Sexagenas & Dies, &c.

QUamvis nuſpiam naturæ motus medius ſive æqualis reperiatur, Aſtronomi tamèn neceſſariò eum commenti ſunt ad dirigendas exorbitantias illas, & deviationes ab æqualitate, quibus apparentes motus ſubjecti ſunt.

Converſio temporis.

Ut igitùr motus medius citiùs inveniatur pro aliquo temporis momento dati, primùm agendum eſt de converſione temporis à Radice in Sexagenas & dies, quod ut efficiatur, oſtendam ſecundum Ægyptiacam & Julianam computationem.

Tab. fol. 74. Primùm igitùr ingredere Tabulam, cui titulus [*Canon convertendi Annos & Menſes Ægyptios in Dierum Sexagenas & Dies*] cum annis & Menſibus completis, & ex eâ pete Sexagenas Dierum & Dies, quæ oblato tempori conveniunt. Commuta deindè Horas & Scrupula per Tabulam eorum converſionis, cui titulus eſt [*Canon convertendi Horas & Scrupula Horæ in Scrupula Diei*] & converſionem fac ut anteà.

1. Exemplum in Annis Ægyptiis. *Exempli gratiâ.* Sit tempus datum annus à *Nabonaſſore* 519. *Dies* 14. *Menſis Tybi*, *Hor.* 3 24′. & requiſitum eſt idem reducere in Sexagenas, Dies, & Scrupula Dierum. Primùm Annos accipio completos 518. Secundò pro *Tybi* ſumo *Chæac* (hoc verò ago quia Annus & Menſis datus non ſunt completi ſed imperfecti) quo peracto, operatio hæc erit.

Tab. Fol. 74.

	″	′	Dies	′	″.
Annis Ægyptiis 500. debentur Sexagenæ dierum	50	41	40.		
Annis 18.	1	49	30.		
Menſi Chæac completo		2	0.		
Diebus Tybi 14.			14.		
Horis 3.				7	30.
Scrupulis horæ 24.				1	0.
Collectio omnium	52	33	24	8	30.

Fol. 75. Si tempus datum ſit in annis Julianis, ingredere Canonem convertendi Annos & Menſes Julianos in Dierum Sexagenas & Dies, & tum demùm progredere omnimodò ſicut anteà.

2. Exemplum in Annis Julianis. Suppone tempus datum eſſe diem 16 *Februarii* 1659. meridie. Ad igitùr convertendum idem in Sexagenas & Dies, obſerva prædictas directiones & hanc ſequentem Operationem.

Fol. 75.

	‴	″	′	Dies.
Annis Julianis 1600. debentur Sexag. Dierum	2	42	20	0.
Annis 58.		5	53	4.
Menſi Januario completo			0	31.
Diebus 16.				16.
Summa eſt Sexagenarum dierum pro tempore converſo.	2	48	13	51.

Præceptum III.

De Calculo mediorum Motuum Planetarum per Tabulas.

Calculus medii motûs. CUm ſecundum Præceptum præcedens, tempus reduxeris in Sexagenas Dierum & Dies, ingredere *Canonem Sexagenarium* medii motûs Planetæ cujus locum quæris, incipiens cum numero illo directè poſito ſub titulo Sexagenæ datæ in fronte Canonis : & hic ſemper memoriâ habendum eſt, quod ſi prior numerus excedat ſenarium, tum rejicies 6. quoties fieri poteſt, & ſervabis reſiduum, ut tot *Signa Phyſica*, & tunc totum opus pervagatus, adde omnes illos numeros (rectè obſervato ordine & differentiâ Specierum) & illud aggregatum, medius motus eſt Planetæ tempori priùs oblato conſentiens.

Duplex via colligendi medios motus.

Ratio *Alphonſinorum.*

Exemplum. Sit inquirendus medius motus Solis ad diem 16 *Februarii* 1659. apud Meridiem ; hoc tempus ſecundum Præceptum prius inventum erat in Sexagenis

genis & Diebus 2‴ 48″ 13′ dies 51. Primùm igitur cum 2‴. ingredior Canonem Sexagenarium medii motûs Solis, ubi adverſùs eadem in 4. Columnâ ſub Sexagenis 32. invenio Sex. 16. gr. 39 24′ 3″ 22‴ 30ᵛ. à quibus abjicio Sex. 12. (cum ſunt duo completi Circuli) & reſidua 4. colloco ſub titulo Signorum, quibus adjungo gr. 39 24′ 3″ 22‴. 30ᵛ. quemadmodum inventa ſunt illic in Tabulâ. Secundò ingredior iterùm Canonem cum 48′. Ubi in tertiâ Columnâ ſub titulo 22. invenio Sex. 18. gr. 39 45′ 37″ 21‴ 0ᵛ. à quibus in loco Signorum me rejiciente 6. quoties poſſim (quod eſt hic 3.) relinquuntur Sex. 0. gr. 39 45′ 37″ 21‴ 0ᵛ. Tertiò cum 13′ intro Canonem, & in Secundâ Columnâ 12. invenio Sex. 12. gr. 48 48′ 16″ 6‴ 22ᵛ. è quibus ſubduco bis ſex, & relinquuntur Sex. 0. gr. 48 48′ 16″ 6‴ 22ᵛ. Et poſtremò 51. diebus reſpondent Sex. 0. gr. 50 16′ 4″ 44‴ 43ᵛ. quæ omnia collecta in unam ſummulam faciunt Signa Phyſica 6 gr. 58 14′ 1″ 34‴ 35ᵛ. quibus additâ Radice Sex. 4. gr. 37 59′ 51″. & à Summulâ ſubtracto toto Circulo, ſive Sex. Signis, reliqua ſunt Sex. 2. gr. 36 13′ 52″ 34‴ 35ᵛ. Et cùm unum *Signum Phyſicum* eſt gr. 60. ſive duo *communia Signa*, habemus medium ejus motum Sig. 5. gr. 6 13′ 52″ 34‴ 35ᵛ. Ad hoc autem demonſtrandum pellucidiùs, accipe Operationem in *Terra*, in hàc formulâ. Fol. 88. Forma *Alphonſina.*

		Sex.	gr.	′	″	‴	iv.
Sexagenæ Dierum	2‴.	4	39	24	3	22	30.
Sexagenæ Dierum ′	48.	6	39	45	37	21	0.
Sexagenæ Dierum	13.	0	48	48	16	6	22.
Dies	51.	0	50	16	4	44	43.
Summa.		6	58	14	1	34	35.
Epocha Chriſti add.		1	37	59	51	0	0.
Medius motus Terræ.		2	36	13	52	34	35.

Tab. Fol. 88.

Hinc medius motus Solis ab Æquinoctio vero verno eſt Signis communibus 11. gr. 6 13′ 52″ 34‴ 35ᵛ. id eſt in loco Terræ oppoſito.

Operatio faciliùs perficiatur per *Canonem vulgarem*, ut hic demonſtrabitur.

Supponatur locus medius Solis indagandus ad tempus ſupradictum 1659. diem 16 *Februarii*, qui eſt annus *Mundi* 5608. Alia ratio & vulgaris.

Primùm ingredior Canonem mediorum motuum, & Epocham proximè minorem dato annorum numero, nempè 1641. excerpo, cum motibus ei reſpondentibus. Secundò in Canone mediorum motuum in Annis Julianis expanſis, colligo medios motus 18. annis congruentes; Dein in Canone Menſium anni communis, *Februarium* depromo, motuſq; reſpondentes. Poſtremò, ex Canone Dierum, exſcribo dies 16. & motus congruentes, quo peracto, omnes hos numeros ſic diſpono. Fol. 105.

Praxis Calculi.

Tempus à *Chriſto nato.*	Sig.	gr.	′	″.	Tempus à *Mundi exordio.*		Sig.	gr.	′	″.
Epoch. Chr. 1641	3	20	15	51	Epocha Mundi	1	2	8	42	25.
Anni expanſi 18	11	29	38	30	Anni Expanſi {	5000	1	7	23	53.
Februarius.	1	0	33	18		600	0	4	29	16.
Dies 15		15	46	13		7	11	29	18	47.
Medius motus ☉	5	6	13	52	Februarius		1	0	33	18.
Hinc med. mot. ☉	11	6	13	52	Dies	16		15	46	13.
					Medius motus Terræ.		5	6	13	52. ut priùs.

Fol. 105.

In Anno Chriſti Biſſextili poſt *Februarium* augeatur unitate Dies, ſed non eſt opus hoc incremento, ſi tempus adhibeatur in annis à Mundi exordio, aliàs operatio eadem evadet, ut hic vides.

Sit inquirendus locus Solis medius ad *Annum Biſſextilem* 1660. diem 20 *Martii*, horam 6. ſub Meridiano *Londinenſi*. Hic eſt *Annus Mundi*, 5609.

Praxis Calculi hæc eſt.

Fol. 105.

Tempus *à Chriſto nato.*	Sig.	gr.	'	"	Tempus *à Mundi exordio.*		Sig.	gr.	'	".
Epoch. Chr. 1641	3	20	15	51	Epocha Mundi	1	2	8	42	25.
Anni Expanſi 19	11	29	24	10	Anni expanſio {	5000	1	7	23	53.
Martius B	1	29	8	19		600	0	4	29	16.
Dies 20		19	42	47		8	0	0	3	35.
Horæ 6			14	47	Martius		1	28	9	11.
Med. mot. Terræ	6	8	45	54	Dies	20		19	42	47.
Med. motus Solis	0	8	45	54	Horæ	6			14	47.
					Medius motus Terræ.		6	8	45	54. ut antea.

Præceptum IV.

De Calculo veri motûs Solis, vel potius Telluris.

'Επιλογισμὸς ψηφοφορίας ἡλιακῆς. Fol. 108. & 109.

1. A medio motu Terræ ſubtrahito Apogæum, & reſtat Anomalia media Eccentri.

2. Cum Anomaliâ ingredere Tabulam Eccentricæ Æquationis, inveniens Signum in fronte & gradum Siniſtrâ cùm Anomalia minor eſt Sex Signis; ſin verò major, quærito Signum in calce & gradum dextrâ, & in angulo communi habebis Æquationem & Logarithmum eidem reſpondentem. Verùm quia ſæpiùs Anomaliæ gradibus adhærent inſuper minuta, accipienda eſt igitur pars proportionalis. Res autèm clarior exemplis apparebit.

Exemplum 1.

Quæratur verus Solis locus Anno Chriſti 1659. die 16 *Februarii*, meridie; quo tempore elicietur verus Solis locus, hoc pacto.

Calculus veri ſive apparentis motûs ☉.

	Sig.	gr.	'	"
Medius motus Terræ.	5	6	13	52
Aphelium Subtr.	9	6	43	10
Anomalia media	7	29	30	42
Æquatio addenda		1	47	53
Verus locus Terræ à Sole.	5	8	1	45
Hinc verus locus Solis à Terrâ.	11	8	1	45
Logarithmus	499619.			

Æquatio ad Anomal. {	gr. 29.	1° 47' 21".	
	gr. 30.	1 48 24.	
Differ. Æquationum		0 1 3.	
Inventio Partis proportionalis.			
Multipl. {	1' 3"	8, 243037	} Adde.
	20 42	9. 708086	
Product.	0 32.	17, 952023	Summa.
Æquatio ad grad. 29		1 47' 21".	
Pars proport. Add.		0 32.	
Æquatio correcta		1 47 53.	

Pars proportionalis, faciliori negotio inventa ſit per opem Canonis ἑξηκοντάδων.

Proponatur locus verus Solis explorandus ad Annum 1660. diem 20 *Martii*, Horam 6. *LONDINI.*

Praxis

Praxis Calculi.

	Sig.	gr.	′	″	
Medius Terræ motus à verno Æquinoctio	6	8	45	54	
Aphelium	9	6	44	17	Logar. diſtantiæ.
Anomalia media	9	2	1	37	⊖ à ⊙ 500044.
Æquatio add		2	2	39	
Verus Terræ locus	6	10	48	33	Id eſt in gr. 10
Verus Solis locus	0	10	48	33	48′ 33″ ♈.

Alīud Exemplum.

Secundum hæc duo Exempla celeritèr invenias *eccentricum locum Lunæ*, aut alicujus Planetæ, cum ejus *Logarithmo*; calculus enim exigitur eodem pacto.

Præceptum V.

De Æquatione temporis propter inæqualitatem Dierum Naturalium.

Æquatio temporis.

QUid ſit *Æquatio Dierum* nil opus eſt hîc diſſerere, cùm hanc in præcedente Libro fuſiùs tractaverim, & ejus fundamenta illic enarraverim: ſecundum quam doctrinam novas Tabulas de temporis æquatione compoſui, per quas hîc oſtendam Tempus æquâre datum, & ſecundum *Bullialdum*, & *Tychonem Brahæum*, quod poſterius accuratius eſt, & ſolùm demonſtrabile ex Syſtemate *Copernici*.

Duplex forma.

Primò, ſecundum Doctrinam Bullialdi.

Forma *Bullialdi.*

Tab. fol. 70.

Supponatur tempus æquale datum eſſe 16 *Junii* 1656. ad horam 2 30′. P. M. quo tempore verus Solis locus eſt in 29° 40′ ♊, & ejus Anomalia Sig. 11. gr. 22 44′ 30″, quo præcognito, ingredior priorem partem præcedentis Tabulæ, cum loco Solis vero, & invenio Æquationem 0′ 7″. additam eſſe. Rursùs cum Anomalia ingredior ſecundam partem ejuſdem Tabulæ, ubi invenio Æquationem 0′ 31″ ſubtractam eſſe à medio tempore; At quia duæ hæ Æquationes contrariæ ſunt affectionis, videl. hæc quidèm adaugens, illa autem diminuens tempus medium; propterea differentiam earum 0′ 24″, pro Æquatione Dierum naturalium depromo; quæ ſecundum proprietatem majoris numeri, ſubtrahenda eſt, ſic tempus apparens erit Hor. 2 29′ 36″. P. M. Ut autem Æquatio Dierum inveniri poſſit expeditiùs, compoſui Tabulam pro anno 1656. quæ ingrediendo cum loco Solis vero, dat Æquationem Dierum quæſitam. Veluti in præcedente Exemplo, cum vero loco Solis gr. 29 40′ ♊, intro Tabulam, & invenio Æquationem temporis 0′ 24″. ſubtractum eſſe, ut antè.

Particularis modus.

Secundo, *Secundum Syſtema* Copernici, *&* *Obſervationis* Tychonis Brahæi.

Forma *Tychonica.*

Nobilis ille *Tycho Brahe* admirabilibus ſuis Obſervationibus ingenioſè invenit veram Dierum Æquationem conſtare ſolùm è differentiâ inter verum Solis locum, & rectam ejus Aſcenſionem, quod enodatè demonſtravimus *in 3. Libro ex Syſtemate Copernici*, & ut idem noſtro uſui nunc applicemus, ingredi oportet primam partem præcedentis Tabulæ, cum vero loco Solis, veluti ante dirigitur, & Æquatio illic inventa (quæ in præcedente Exemplo eſt 0′ 7″ addenda) eſt, vera & abſoluta Dierum Æquatio, ſic tempus apparens erit datum, Hor. 2 30′ 7″.

Præceptum VI.

De Calculo veri motûs trium ſuperiorum Planetarum,* Saturni, Jovis, *&* Martis, *in Longitudinem.

ἐπιλογισμὸς Calculi.

1. COllige primùm, ad tempus datum, verum locum *Solis*, & ejus *Logarithmum*, ſecundum Præceptum IV.

2. Invenito dein *Medium Motum Planetæ*, *Aphelium*; & *Nodum Boreum*, veluti in 3. Præcepto traditum eſt.

3. Subtrahe *Aphelium* à Longitudine Planetæ, & reſidua eſt Anomalia Eccentri media.

Regulæ ad inveniendum verum motum Planetæ.

4 Cum Anomaliâ ingredere Tabulam *Proſthaphæreſis Planetæ in Ellipſi*, veluti ante in Sole demonſtratur, & illic deprome Proſthaphæreſin, cum Logarithmo, quem ſeorſim denota, veluti in operatione ſubſequenti; Proſthaphæreſis autem addenda eſt, vel ſubtrahenda à medio motu longitudinis, prout tituli in Canone docent; ſic erit Summa ſive differentia, locus Planetæ Heliocentricus, ſeu locus ejus à Sole in Orbitâ ſuâ.

5. Ab *Heliocentrico loco* Planetæ ſic invento, aufer *Nodum* ejus *Boreum*, & relinquitur *Argumentum latitudinis*, quo cum ingredere Canonem Latitudinarium, proximè poſt Tabulam Proſthaphæreſis Planetæ in Ellipſi, poſitum, & eximito *Inclinationem*, *Reductionem*, & *Curtationem*, cum Scrupulis Proport. Reductionem, adjice *loco Planetæ Heliocentrico*, vel ab eodem detrahe, juxta tituli affectionem, & habebis locum Planetæ Heliocentricum ad Eclipticam reductum. *Curtatio* autem ſemper ſubtrahenda eſt à *Logarithmo* Planetæ, & relinquitur *Logarithmus curtatus*.

6. Aufer *locum Planetæ Heliocentricum* à vero loco Solis, & remanebit Anomalia Orbis, quæ reſervanda eſt.

7. Auferatur Logarithmus Planetæ è Logarithmo diſtantiæ Telluris (Radio priùs addito Terræ Logarithmo) ut relinquatur *Numerus Logarithmicus*.

Eâdem facilitate reſolvi poteſt per Probl 2. Triang. Plan. Obliq.

8. Numerus Logarithmicus ſic inventus erit Tangens arcûs, cui adde 45. gradus, & tùm Cotangenti Summæ ſi addatur Tangens Semiſſis Anomaliæ Orbis (vel ſi eadem ſemiſſis Anomaliæ Orbis ſit major 90. gradibus, accipe Complementum ad gr. 180.) aggregatum erit Tangens cujuſdem arcus, qui additus dimidio Anomaliæ Orbis, dat Angulum Elongationis, ſubductus verò, relinquit Parallaxin Orbis quæſitam.

Ratio facilior per Tabulas.

Aliter: Adi Cânonem Parallaxeωs Annui Orbis in Planetâ formatæ, cujus locum quæris, inveniendo Numerum Logarithmicum in fronte Canonis, & Anomaliam Orbis vel dextrâ vel ſiniſtrâ, & in angulo communi invenies Parallaxin huic reſpondentem, quæ addenda eſt loco Planetæ Heliocentrico ad Eclipticam reducto, vel ſubtrahenda ab eodem, ut tituli monent.

Exemplum, Sit inquirendus verus locus *Saturni* Septimo die *Novembris*, Anno Chriſti, 1665. Meridie, quo tempore verus locus Solis ſecundum 4. Præceptum, invenitur in gr. 25 37′ 44″ ♏, & Logarithmus, 499409.

Praxis

Praxis Calculi in ♄.

	S.	gr.	′	″			
Medius motus Saturni	9	11	51	32		600285.	Logarith ♄.
Aphelium	8	27	36	47		1.	Curt. Sub.
Anomalia Eccentri	0	14	14	45		499409.	Logar. ☉.
Proſthaphæreſis ſub.		1	31	14		600284.	Logar. ♄ Curt.
Locus Heliocentricus	9	10	20	18	Tang.	899125	5° 35′ 51″. Num. Log.
Nodus Boreus	3	21	11	35			45 Add.
Argumentum Latitudinis	5	19	8	43	Cotang.	991460	50 35 51. Summa.
Reductio Ad.			0	38	Tang.	961421	22 21 36. ſem. Co. Ano. Orb.
Locus Heliocent. Reduct.	9	10	20	56	Tang.	952881	18 40 16 Semiſ. differ.
Locus Solis verus	7	25	37	44			
Anomalia Orbis	10	15	16	48			41 1 52. Elong. ♄ à ☉.
Parallaxis Subtr.		3	41	20			3 41 20. Parallaxis Orbis annui.
Verus locus ♄ Geocentric.	9	6	39	36	Hoc eſt in gr. 6 39′ 36″ ♑.		

Exemplum in ♄.

Praxis Calculi in ♃ ad idem ſupra datum tempus.

	S.	gr.	′	″			
Medius motus Jovis	10	29	46	10		570141.	Logar. ♃.
Aphelium	6	9	12	4		7.	Curt. ſub.
Anomalia media	4	20	34	6		499409.	Logar. ☉.
Proſthaphæreſis Subtr.		3	37	56		570134.	Logar. ♃.
Locus Heliocentricus	10	26	8	14	Tang.	929275	11 6 6. Num. Log.
Nodus Boreus	3	7	10	2			45. Add.
Argumentum Latitud.	7	18	58	12	Cotang.	982732	56 6 6. Summa.
Reductio Subtr.			0	29	Tang.	1000379	45 15 0. Sem.Co.Ano.Orb.
Locus Heliocent. Reduct.	10	26	7	45	Tang.	983111	34 7 48. Semiſ. differ.
Locus Solis	7	25	37	44			
Anomalia Orbis	8	29	29	59			79 22 48. Elongatio.
Parallaxis Subtr.		11	7	12			11 7 12. Paral. Orbis ♃.
Locus ♃ Geocentric.	10	15	0	33	Id eſt 10 gr. 15 0′ 33″ ♒.		

Exemplum in ♃.

Praxis Calculi in ♂ ad tempus idem ſupra datum.

	S.	gr.	′	″			
Mediosmotus ♂	4	0	23	2		521729.	Logar. ♂.
Aphelium	5	0	15	46		22.	Curt.
Anomalia Eccentri	11	0	7	16		499409.	Logar. ☉.
Proſthaphæreſis ad.		4	48	6		521698	Logar. ♂ Curt.
Locus Heliocentricus	4	5	11	8	Tang.	977711	30° 54′ 11″. N. L.
Nodus Boreus	1	17	30	38			45. Add.
Anomalia Latitud.	2	17	40	30	Cotang.	939989	75 54 11. Summa.
Reductio Subtr.			0	23	Tang.	1015840	55 13 29. Semiſ. Ano. Orb.
Locus Heliocent. Reduct.	4	5	10	45	Tang.	955829	19 52 57. Semiſ. differ.
Locus Solis verus	7	25	37	44			75 6 26. Elongatio.
Anomalia Orbis	3	20	26	59			35 20 32. Parallaxis
Parallaxis Add.	1	5	20	32	Orbis annui in ♂ Add.		
Locus ♂ Geocent.	5	10	31	17	Hoc eſt in gr. 10 31′ 17″ ♍.		

Exemplum in ♂.

Methodus facilior eruendi Parallaxin Orbis in quinq; Planetis.

Parallaxis Orbis annui ſecùs inveniatur per Tabulas, ut ſupra docetur, prout videris in Exemplo præcedente *Saturni*, ubi Anomalia Orbis reperitur, Sig. 10 gr 15 16′ 48″. cum quâ, & *Numero Logarithmico*, 899125. Canonem Parallaxeω Orbis annui in *Saturno* ingredior, & parte proportionali utendo, ut alibi edoctum eſt, reperio Parallaxin, gr. 3 41′ 27″, quæ antea̔cto calculo adamuſſim congruit.

Modus inveniendi Parallaxin Orbis in omnibus quinq; Planetis, per Tabulas.

Præ-

Præceptum VII.

De Calculo veri motus duorum inferiorum Planetarum,* Veneris, *&* Mercurii *in Longitudinem.

De Venere & Mercurio.

PRaxis Calculi perſimilis eſt calculo trium ſuperiorum Planetarum, & differt tantùm in collatione Parallaxeos Orbis. In ſuperioribus enim Planetis Parallaxis Orbis eſt angulus ad Planetam; hîc autem in Inferioribus eſt angulus apud Terram, qui in priori Semicirculo additus, & in poſteriori ſubductus è loco Solis vero, dat verum locum Planetæ quæſitum, ut viſus eſt à Terra.

Et cum in ſuperioribus Planetis, Anomalia Orbis ſit inventa ſubducendo locum Planetæ Heliocentricum à vero loco Solis; hic inventa eſt in Inferioribus Planetis, ſubtrahendo locum Solis à loco Planetæ Heliocentrico. Poſtremò ſubtrahe Logarithmum Solis à Logarithmo Planetæ Curtato, (Radio ſuperaddito minori Logarithmo) & emergit Numerus Logarithmicus.

Exemplum. Quæratur verus locus Veneris anno ſupradicto 1665. die 7 *Nobris*, in meridie.

Praxis Calculi.

Exemplum in ♀.

	S.	gr.	′	″		
Medius motus Veneris	4	21	16	31	485679.	Logarith. ♀.
Aphelium	10	0	35	32	65.	Curtatio Subtr.
Anomalia media	6	20	40	59	485618.	Logar. Curt.
Proſthaphæreſis Add.			17	52	499409.	Logar. Solis.
Locus ♀ Heliocentricus	4	21	34	23		
Nodus Boreus	2	13	58	38	Tang. 986205	36° 2′ 58″.
Argumentum Latitudinis	2	7	35	45		45. Add.
Reductio Subtr.			2	5	Cotang. 919725	81 2 58.
Locus Heliocentr. Reduct.	4	21	32	18	Tang. 1003103	47 2 43 ½ Compl. Ano. Orb.
Verus locus Solis	7	25	37	44	Tang. 922830	9 36 5. Semidifferent
Anomalia Orbis	8	25	54	34		37 26 38. Elongatio,
Parallaxis Orbis Subtr.	1	7	26	38	ſeu Parallaxis Orbis Veneris in Terrâ.	
Locus ♀ Geocentricus.	6	18	11	6	Hoc eſt in gr. 18 11′ 6″. ♎.	

Praxis Calculi veri loci Stellæ Mercurii *ad tempus ſupradictum.*

Aliud in ☿.

Per Probl. 2. Triang. Plan. Obliquang.

	S.	gr.	′	″	
Medius motus Mercurii	5	8	56	1	460056. Logar. ☿.
Aphelium	8	11	56	48	140 Curt. ſub.
Anomalia media	8	26	59	13	1499409. Logar. major, Rad. add.
Proſthaphæreſis Ad.		23	35	26	459916. Logar. ☿ Curt.
Locus Heliocentricus	6	2	31	27	Tang. 1039493. gr. 68 3′ 41″.
Nodus Boreus	1	14	13	44	Tang. 962914. gr. 23 3 41.
Anomalia Latitudinis	4	18	17	43	Tang. 969676. gr. 26 26 56. Semiſ. Ano. Orb.
Reductio Add.			12	25	Tang. 932590. gr. 11 57 28.
Locus Heliocentr. Reduct.	6	2	43	52	14 29 28. Elongatio
Locus Solis verus	7	25	3′	44	☿ à ☉, ſeu Parallaxis Orbis Mercurii in Terrâ.
Anomalia Orbis	10	7	6	8	
Parallaxis Subtr.		14	29	28	
Locus ☿ Geocentric.	7	11	8	16	Viz. in gr. 11 8′ 16″ ♏.

Præceptum

Præceptum VIII.

De Calculo Latitudinis quinq; Planetarum, Saturni, Jovis, Martis, Veneris, & Mercurii.

UT in calculo longitudinis horum quinque Planetarum, duplicem habemus longitudinem datam, unam quidem verum locum à Sole, alteram autem locum à Terrâ viſum. Sic etiam duplex eſt latitudo, una quidèm vera Latitudo, ſeu Inclinatio Orbitæ ab Eclipticâ quoad Solem, qui communis eſt Focus Orbis: altera ut apparet è Terrâ, quæ præcipuè reſpicit diſtantiam Terræ à corpore Planetæ, quemadmodum ex ratione Opticâ evincitur, ut evidentiùs patet ex pellucidis illis Demonſtrationibus præcedentis Libri.

Duplex latitudo. Prior, reſpectu Solis, quæ inclinatio dicitur. Poſterior ut apparet è Terrâ, quæ ubiq; Latitudo Planetæ vera à nobis appellatur.

Et cum Latitudo Planetarum facilè obtineatur per Canonem Artificialium *Sinuum* & *Tangentium*, idcircò Regulam generalem ad hoc efficiendum, proponam.

Ut Sinus Anguli Elongationis, ad Sinum Anguli Commutationis, ſeu Anomaliæ Orbis, ita Cotangens *Inclinationis, ad Cotangentem Latitudinis.* Et è converſo.

Ut Sinus Anguli Anomaliæ Orbis, ad ſinum Anguli Elongationis, ita Tangens Inclinationis, ad Tangentem Latitudinis.

Quapropter, Arithmetico Complemento ſinûs Elongationis, addatur ſinus Anomaliæ Orbis, & Cotangens Inclinationis, & Summa (rejecto Radio) eſt Cotangens Latitudinis quæſitæ.

Primus modus inveniendi Latitudinem Planetæ.

In priori Exemplo, Elongatio *Saturni* à *Sole* eſt gr. 41 1′ 52″. Anomaliæ Orbis Complementum, gr. 44 43′ 12″, & Inclinatio gr. 0. 28′ 20″ Latitudo igitur Saturni eſt gr. 0. 26′ 26″.

Praxis Calculi.

Elongatio ♄ à ☉, gr. 41 1′ 52″.	A c.	018279	Exemplum in ♄.
Complementum Anomaliæ Orbis, gr. 44 43′ 12″.	s.	984735.	
Inclinatio gr. 0 28′ 12″.	ct.	1208396.	
Latitudo ♄ *Geocentrica* gr. 0 26′ 26″.	ct.	1211410.	

Sit eruenda Latitudo *Jovis* ad tempus ſupradictum, in quo Anomalia Orbis eſt gr. 89. 29′ 59″. ſupra Semicirculum, Elongatio gr. 79. 22′ 48″, & Inclinatio gr. 1. 1′ 43″.

Praxis Calculi.

Elongatio ♃ à ☉, gr. 79. 22′ 48″.	A C	000750.	Exemplum in ♃.
Angulus Anomaliæ Orbis, gr. 89. 29′ 59″.	s.	999998.	
Inclinatio ab Eclipticâ, gr. 1 1 43.	ct.	1174583.	
Latitudo ♃ *Geocentrica* gr. 1 0 40.	ct.	1175331.	

Sit inquirenda Latitudo *Martis* ad idem tempus, in quo Anomalia Orbis eſt gr. 110. 25′ 58″. Elongatio gr. 75 5′ 37″, & Inclinatio gr. 1 48′ 31″, Ergò latitudo *Martis* erit gr. 1 51′ 54″.

Praxis Calculi.

Elongatio ♂ à ☉ gr. 75 6′ 26″.	A C	001484.	
Angulus Anomaliæ Orbis gr. 69 33 1.	s.	997173	Exemplum in ♂.
Inclinatio gr. 1 48 31.	ct.	1150063.	
Latitudo ♂ *Geocentrica*. gr. 1 51 54.	ct.	1148720.	

Sit eruenda Latitudo *Veneris* juxta tempus ſupradictum, in quo Elongatio à Sole eſt gr. 37 26′ 38″, Anomalia Commutationis eſt gr. 265 54′ 34″, & Inclinatio, gr. 3 7′ 30″. Latitudo hinc evadet gr. 1 54′ 22″.

Exemplum in ☿.

Praxis Calculi.

Angulus Anomaliæ Orbis	gr. 85 54′ 34″.	s. A C.	000111.
Elongatio ☿ *à* ☉	gr. 37 26 38.	ſ.	978389.
Inclinatio	gr. 3 7 30.	t.	873716.
Latitudo ☿ *Geocentrica,*	gr. 1 54 22.	t.	852216.

Proponatur Latitudo *Mercurii* exploranda ad idem tempus, in quo datur Anomaliæ Orbis Complementum gr. 52 53′ 52″, Elongatio gr. 14 29′ 28″, & inclinatio, gr. 4 35′ 24″. dabitur itaq; latitudo *Mercurii*, gr. 1 26′ 34″.

Exemplum in ☿.

Praxis Calculi.

Elongatio ☿ *à* ☉	gr. 14 29′ 28″.	s. A C.	060166.
Compl. Anomaliæ Orbis,	gr. 52 53 52.	ſ.	990176.
Inclinatio S. D.	gr. 4 35 24.	ct.	1109538
Latitudo ☿ *Geocentrica,*	gr. 1 26 34.	ct.	5159880.

Modus ſecundus.

METHODUS ALTERA, LATITUDINEM HORUM QUINQUE PLANETARUM ERUENDI.

Primùm, quæſito Tangentem maximæ Inclinationis, cui adde Sinum Elongationis, Sinum Anomaliæ latitudinis, & Complementum Arithmeticum Sinûs Anomaliæ Orbis, à quibus ſubtrahe Radium duplum, & relinquet Tangentem Latitudinis quæſitæ.

Exemplum. Cupio ſcire Latitudinem *Saturni* veram, Anno Chriſti ſupradicto, 1665. die 7 *Novembris*, quo tempore dabitur Elongatio à ☉ gr. 41 1′ 52″, Complementum Anomaliæ Latitudinis gr. 10 51′ 17″. Et Anomalia Orbis annui gr. 269 29′ 59″.

Exemplum.

Praxis Calculi.

Inclinatio maxima ♄	gr. 2 30′ 30″.	t.	8641540.
Elongatio	gr. 41 1 52.	s.	9817214.
Compl. Anomaliæ Latitudinis,	gr. 169 8 43.	s.	9274895.
Compl. Anomaliæ Orbis	gr. 44 43 12.	C A.	0152648.
Latitudo ♄ *Geocentrica*	gr. 0 26 26.	t.	7886297.

Congruit itaq; hic Calculus adamuſſim cum priori.

Modus alius horum quinque Planetarum Latitudines explorandi, abſque Sinuum, Logarithmorumve uſu.

Methodus altera per Tabulas noſtras, facillima.

QUamvis Latitudo Planetarum adamuſſim inveniatur per Doctrinam *Sinuum* & *Tangentium* præcedentem, propoſitum tamen nobis hic eſt demonſtrare quo pacto eadem Latitudo expeditiſſimè elici poteſt ad quodvis tempus, ex Tabulis noſtris exquiſitè confectis; quare ad rem ipſam properamus.

Utrum Latitudo Planetæ ſit Borea, ſeu Auſtrina.

Ingredere Canonem Maximæ *Latitudinis Geocentricæ* alicujus Planetæ, inveniendo Anomaliam Orbis in latere dextro aut ſiniſtro, ac *Numerum Logarithmicum* in fronte, & in angulo communi exſcribe Latitudinem Planetæ Maximam, de quâ ſumenda eſt Pars Proportionalis Scrupulis proportionalibus congruens, & naſcetur Latitudo Planetæ vera, Borea quidem ſi Anomalia Latitudinis minor ſit ſex Signis, Auſtrina verò ſi totidem major extiterit.

Exempla duo

Exemplum 1. *in Stella Martis.*

Tab. fol.

Sit inquirenda Latitudo *Martis* ad tempus ſupra datum, in quo Anomalia Latitudinis erat Sig. 2. 17° 40′ 30″. Anomalia Orbis, Sig. 3. gr. 20 26′ 58″, & *Numerus Logarithmicus*, 977711.

Tab. fol.

Primùm ingredior Canonem Scrupulorum Proportionalium, cum Anomaliâ Latitudinis, & excerpo Scrup. proport. 58′ 38″. Dein cum Anomalia Orbis & Numero Logarithmico, Latitudinem ſumo maximam Geocentricam

centricam gr. 1 54′, quibus in 58′ 38″ ductis, prodit Latitudo *Martis* Geocentrica, gr. 1 51′ 25″, quæ anteacto Calculo per Logarithmos conſentit. Tab. fol.

Exemplum aliud in Stellâ Veneris.

In priori Exemplo calculi longitudinis Veneris, erat Anomalia Latitudinis, Sig. 2. gr. 7 35′ 45″, Anomalia Orbis, Sig. 8. gr. 25 54′ 34″, & Numerus Logarithmicus 986205.

Cum Anomalia Latitudinis eliciuntur Scrupula Proportionalia 55′ 28″, Tab. fol.
& cum Anomalia Orbis, & Numero Logarithmico, Latitudo maxima gr. 2 3′ 31″. Hiſce itaq; datis, Latitudo ſit inveſtiganda. Tab. fol.

Operatio. Per Tab. Sexag.

2° 3′ 31″.	Latitudo Maxima.	
55 28.	Scrup. Proport.	
57 38 28.		
1 53 13 25.		
1 54 11 3 28.	Latitudo ♀ Geocentrica.	

Aliter, per Logarithmos Logiſticos.

Latitudo ♀ Maxima	2° 3′ 31″.	853542.
Scrup. Proport.	55 28.	996588.
Latitudo ♀ Geocentrica	1 54 11.	850130.

Præceptum IX.

De Lunâ.

De Calculo Longitudinis Lunæ.

PRimùm, *Locus Solis verus* ſit inquirendus, juxta Præceptum 4.

2. *Medii motus Lunæ, Apogæi, & Nodi* ejus *Borei* colligendi ſunt ad tempus datum. Modus ſuppurandi veros Lunæ motus.

3. Auferatur locus Apogæi Lunæ à Longitudine ejus mediâ, ut relinquatur Anomalia media, ſeu ſimplex.

4. Cum *Anomaliâ* Lunæ *mediâ* adeunda eſt *Tabula Proſthaphæreſium* Lunæ in Ellipſi, ex quâ excerpenda eſt *Æquatio abſoluta*, ut in cæterorum Planetarum locis computandis innuimus, unà cum *Logarithmo*, quem adſerva. Æquatio autem addenda eſt medio motui, & Anomaliæ mediæ, vel ab eiſdem auferenda, juxta titulos.

5. Detrahatur *Locus Solis* verus à *loco Lunæ* ſic æquato, & relinquetur diſtantia Lunæ à Sole, cum quâ adeunda eſt Tabula Reflectionis & Logarithmorum Chordæ Evectionis, & habebis Logarithmum *Chordæ Evectionis*.

Vel Logarithmo Diametri Circelli Evectionis addatur Sinus Diſtantiæ Lunæ à Sole, & Summa (rejecto Radio) eſt Logarithmus Chordæ Evectionis.

6. Si Luna à Conjunctione ſive Oppoſitione Solis ad Quadraturas tranſierit, Complementum ad Quadraturam ejus diſtantiæ à Sole addendum eſt Anomaliæ æquatæ. Sed cum à Quadraturis ad Conjunctionem ſive Oppoſitionem tranſierit, exceſſus ſupra Quadrantem ejus diſtantiæ à Sole ſubtrahendus eſt ab Anomaliâ æquatâ, & ſumma ſive differentia eſt Anomalia Synodica.

7. A Logarithmo Chordæ Evectionis ſubtrahe Logarithmum Diſtantiæ Lunæ ab umbilico, & relinquitur *Numerus Logarithmicus*, cum quo & Anomaliâ Synodicâ ingredi oportet Tabulam Evectionis Lunæ, & *Evectio* excerpenda eſt, cum ſuo titulo.

8. Deniq; Si Reflectio & Evectio aut & Additionis aut ſubtractionis erunt, ſumma, aliàs differentia earum, Abſoluta ſecundaria eſt Æquatio, &c.

Exempli gratia. Anno 1587. *Januarii* die 15. horis 15. 5′ tempore apparente quando Luna eſſet in Nonageſimo Eclipticæ gradu, viſa eſt *Uraniburgi* in ♌ gr. 25 38′ 30″. Locus Solis verus tunc fuit in gr 5 46′ 33″ ♒, & Æquatio temporis 9′ 33″ addenda: tempus igitur medium erat horis 15 14′ 33″.

Propter Meridianorum diſcrimen ſubtrahenda ſunt *Londini* ſcrupula Horæ 52′ quamobrem tempus medium *Meridiano Londinenſi*, eſt horis 14 22′ 33″.

Praxis Calculi.

		Lunæ	Apogæi	Nodi Bor.	
Radix	1581	7ˢ 23° 56′ 17″	4 15 42 57	10 8 23 17	Radix.
Anni expanſi	6	2 9 28 49	8 4 6 7	3 26 1 29	
Dies	15	6 17 38 45	1 40 16	47 4 0	
Horæ	14	7 41 10	3 54	1 51	
Scrup.	22′	12 5	6	3	
	33″	18	0	3 26 51 8	Subtr. à Radice.
Medius motus		4 28 57 24	0 21 33 20	6 11 32 14	☊
Apogæum Sub.		0 21 33 20			

			Sig. ° ′ ″
Anomalia media	4 7 24 4	Anomalia correcta	4 3 48 32
Proſthaphæreſis ſub.	4 0 39	Add.	2 10 49 48
Anomalia æquata	4 3 23 25	Anomalia Synodica.	6 14 38 30
Locus ☽ æquatus	4 24 56 45		
Locus Solis	10 5 46 33	Log. Chordæ Evectionis	175941
Diſtantia ☽ à ☉	6 19 10 12	Log. diſtantiæ ☽	359632
Duplicata diſtantia	1 8 20 24	Numerus Logarithmicus	816309
Reflectio add.	25 7		
Anomalia correcta	4 3 48 32	Reflectio add.	0° 25′ 7″
Æquatio a Add.	37 50	Evectio add.	0 12 43
Locus Lunæ in Orbitâ	4 25 34 35	Æquatio Lunæ ſecundaria.	0 37 50

Æquationem Lunæ ſecundariam alitèr invenire.

Cum Anomaliâ æquatâ (per Proſthaphæreſin & Reflectionem) unà cum diſtantiâ ☽ à ☉ adeunda eſt Tabula Æquationis ultimæ ☽ compoſitæ ex Evectione & Reflectione, & Æquatio in angulo communi accipi debet, quæ per partem proportionalem limitanda eſt. Hâc autem Æquatione additâ vel ſubtractâ juxta tituli affectionem in fronte ac calce Canonis expreſſam, à loco Lunæ ſecundò æquato, relinquitur verus Lunæ locus in propriâ Orbitâ.

In noſtro Exemplo, Anomalia ſecundò correcta eſt Sig. 4 gr. 3 48′ 32″ & diſtantia Lunæ à Sole Sig. 6 gr. 19 10′ 12″. Cum iſtâ Diſtantiâ & Anomaliâ ingredior Canonem ultimæ Æquationis Lunæ, & quoniam Luna ab Oppoſitione vadit ad Quadraturam, quæro Anomaliam in primâ Columnâ ad ſiniſtram, & in fronte, diſtantiam Lunæ à Sole, & in Angulo communi (factâ Analogiâ pro gradibus interceptis) reperio Æquationem gr. 0 37′ 34″ loco Lunæ primò æquato addendam, ita ut Locus Lunæ ſecundò æquatus ſit in gr. 25 34′ 19″ ♌.

Præceptum X.

De Calculo veræ Latitudinis Lunæ.

PRimùm. Auferatur locus Nodi Lunæ Borei à vero Lunæ loco, ut habeatur verus motus Latitudinis, ſeu Diſtantia Lunæ à Nodo.

2. Cum verâ diſtantiâ Lunæ à Sole intra Canonem ſcrupulorum proportionalium,

tionalium, & ibi excerpe ſcrupula proportionalia, unà cum Nodorum Proſthaphæreſi quæ nullius nobis eſt uſus, ſed Hypotheſibus Tychonianis ſolùm inſerviet, ut infra demonſtrabimus.

3. Cum vero motu Latitudinis antea conſtituto, ex Canone Latitudinis Lunæ, excerpatur Latitudo cum acceſſu, de quo accipe partem proportionalem (ut in Logiſt. Arith. demonſtravimus) eamq; ſemper Lunæ latitudini adde, ut habeatur Latitudo Lunæ vera vel Borea vel Auſtrina, prout tituli in fronte & calce Canonis monent. Tab. ſol.

Exemplum. In priori Paradigmate habuimus motum Lunæ ſecundò æquatum, Sig. 4 gr. 25 34′ 35″; & diſtantiam Lunæ à Sole, Sig. 6 gr. 19 10′ 12″; cum quâ ingredior Canonem ſcrupulorum proportionalium, & excerpo ſcrupula proportionalia 6′ 35″, & Proſthaphæreſin Nodorum gr. 1 7′ 28″ ſubtrahendam, hanc igitur ſubtraho à Nodo Lunæ Boreo, Sig. 6 gr. 11 32′ 14″, & relinquitur Motus Nodi (formâ Tychonianâ) Sig. 6 gr. 10 24′ 46″. His verò ſic acquiſitis, ſubtrahatur primùm Motus medius Nodi Borei, Sig. 6 gr. 11 32′ 14″ à vero motu Lunæ, Sig. 4 gr. 25 34′ 35″, & reliquus (noſtrâ Hypotheſi) eſt verus motus Latitudinis Lunæ, Sig. 10 gr. 14 2′ 21″, cum quo intro Canonem Latitudinis Lunæ, & excerpo ejus Latitudinem gr. 3 35′ 33″, cum exceſſu 12′ 13″, de quo capio partem proportionalem ſcrupulis proportionalibus debitam, tali Analogiâ, ut gr. 1 ad 12′ 13″, ita 6′ 35″ ad 1′ 19″, quæ pars addita, gr. 3 35′ 33″ oſtendit veram Lunæ Latitudinem, gr. 3 36′ 52″ Auſtrinam.

Tycho in ſuis Hypotheſibus conſtituit *motum Nodorum inæqualem*, & poſſe tam contra ſeriem, quam ſecundum ſucceſſionem Signorum proreptari, idcircò hic oſtenderimus, quo pacto, indaganda eſt Latitudo (ſententiâ *Tychonianâ*) ut Lectores aſſequi poſſint, quam opinionem maluerint. *Tychonis* opinio de motu Nodorum inæquali.

Supra habuimus motum Nodi Borei æquatum, Sig. 6 gr. 10 24′ 46″, & locum Lunæ, Sig. 4 gr. 25 34′ 35″, ſubtracto loco Nodi à loco Lunæ, conſurgit Argumentum Latitudinis, Sig. 10 gr. 15 9′ 49″, cujus auxilio (ut priùs docetur) Latitudo *Tychonica* erit gr. 3 32′ 43″ Auſtrina.

Denique, *Reductio Lunæ* ab Orbitâ ad Eclipticam ſic invenienda eſt. Cum Argumento Latitudinis *Lunæ* ingrediatur Canonem Reductionis Lunæ, &c. & juxta titulos Reductio addi vel ſubtrahi debet.

Veluti in noſtro Exemplo, Argumentum Latitudinis eſt, Sig. 10 gr. 15 9′ 49″, cum quo Canonem ingredior, & invenio Reductionem 6′ 59″ addendam; adde igitur eandem ad motum Lunæ in Orbitâ, & conflatur vera Longitudo Lunæ in Eclipticâ, gr. 25 41′ 34″ ♌.

Præceptum XI.

De inveniendo tempore medio Conjunctionis vel Oppoſitionis Luminarium.

HUjus rei inveſtigatio cum ſit perquàm neceſſaria in Calculo Eclipſium, neceſſe eſt illius Demonſtrationem facere; quapropter Meridie Diei proximè præcedente Menſem datum, quærito mediam Longitudinem *Lunæ* à *Sole* per *Canonem Sexagenarium*, vel alitèr, quæ ſi fortè ſit Sexagenarium 6 præcisè, tempus medii Novilunii accuratè eſt eo momento. Si verò minor ſit Sexagenis 6, ſubtrahe eandem à Sexagenis 6, & reliquum converte (*per Canonem Sexagenarium medii motùs Lunæ à Sole*) in dies, & diei ſcrupula, quæ reducta in tempus (ut infra demonſtrabimus) dabunt tempus Novilunii medii anno & menſe dato. At ſi requirendum ſit Plenilunium invenire; tunc aufer medium motum Lunæ à Sole à Sexagenis 3, & converte reliquum, ut ante. De tempore mediæ Syzygiæ inveniendo.

In

In Exemplo. Cupio ſcire tempus Novilunii & Plenilunii in menſe Aprilis 1659. quem ad finem, accipio annos completos 1658. & menſem Martium. Hoc eſt *Sexagena dierum*, 2‴ 48″ 14′. Dies 34. ex quibus medius motus Lunæ à Sole ſic obtineri poſſit.

	Sex.	gr.	′	″.
Epocha Chriſti	3	24	32	17.
2‴	5	23	2	13.
48″	3	21	12	53.
14′	2	40.	13	41.
Dies 34	0	54	29	8.
Diſtantia Lunæ à Sole	3	43	30	12.

Modus convertendi diſtantiam Lunæ à Sole in dies, & diei Scrupula.

Hoc præcognito, deduco eandem à Sexagenis 6. & reliquum Sex. 2. gr. 16 29′ 48″. converto in Dies & Diei Scrupula, per *Canonem Sexagenarium* Longitudinis Lunæ à Sole, in hunc modum.

Tab. fol.

	Sex.	gr.	′	″.
Diſtantia Lunæ à Conjunctione Solis	2	16	29	48.
Dies 11.	2	14	5	54.
Reſtat		2	23	54.
Scrup. 11.		2	14	6.
Reſtat			9	48.
Sec. 48″.			9	45
Reſtat				3.
Tert. 14.				3.
Reſtat				0.

Reductio in tempus.

Quæ ſic reducuntur in tempus:

	Dies	Ho.	′	″	‴.
Dies 11.	11				
Scrup. 11.		4	24		
Sec. 48.			19	12	
Tert. 14.				5	36.
Summa omnium	11	4	43	17	36.

Per Can. fol. 76.

Quapropter tempus medii Novilunii cadit in Aprili 1659. die 11. horâ 4. 43′ 17″. ad autem inveniendum tempus Plenilunii medii proximè ſubſequentis, addo Novilunio dato, tempus dimidiæ Syzygiæ, dierum 14 hor. 18. 22′ 2″. & productus dat tempus medii Plenilunii proximè ſubſequentis, die 25 Aprilis, hor. 23 5′ 19″. & ſic procedendum à Plenilunio ad Novilunium, & à Novilunio ad Plenilunium, ad libitum.

Præceptum XII.

Tempus veræ Conjunctionis vel Oppoſitionis Luminarium invenire.

Ἀκριβὴς Συζυγία.

De tempore veræ Syzygiæ.

TEmpori mediæ Syzygiæ oblato, colligenda eſt loca Luminarium vera, quæ in unum ſi fortè conſentient, vera Syzygia ſit eodem momento, ſin verò eorum loca diſſentient (quòd ſæpiuſculè ſit) tunc accipienda eſt eorum differentia, quam dividere oportet per verum horarium Lunæ à Sole motum, & Quotiens intervallum dabit mediæ & veræ Syzygiæ. Adjice hoc mediæ Syzygiæ, ſi Lunæ locus ſit minor Solis loco; aufer verò eundem, ſi locus Lunæ ſit major loco Solis, & habebis tempus medium veræ Syzygiæ quamproximè.

Ad

Ad hoc tempus computa veros Solis & Lunæ motus, qui ſi præciſè conſenſerint, erit tempus veræ Syzygiæ adamuſſim inventum; ſin verò reſtat quantilla quæpiam differentia (quod ſæpiſſimè accidit) divide eandem in motum verum Lunæ à Sole horarium, eo momento, & quotientem, vel adde vel aufer tempori veræ Syzygiæ priùs invento (ut locus Lunæ minor, vel major eſt loco Solis) & habebis tempus veræ Syzygiæ accuratum.

Operatio.

Exemplum. Ex priori Præcepto, tempus medii Plenilunii accidit in *Aprili*, 1659. die 25 horis à meridie 23 5′ 19″, quo tempore verus locus Solis eſt in gr. 15 47′ 34″ ♉; & verus locus Lunæ in gr. 10 46′ 18″ ♏, & quia Lunæ locus diſtat ab oppoſito Solis gr. 5 1′ 16″, idcircò hanc differentiam divido per verum motum Lunæ à Sole horarium 34′ 34″, & prodeunt horæ 8. 42′ 56″ quas addo tempori medii Plenilunii, horis 23 5′ 19″, quia Lunæ locus, Solis loco eſt minor, & producuntur dies 26. horæ 7. Scrup. 48 15″, quod eſt tempus æſtimatum veri Plenilunii menſe dato. Ad hoc tempus veros motus Solis & Lunæ computo, & invenio locum Solis in gr. 16 8′ 34″ ♉, & locum Lunæ in 16° 10′ 1″ ♏, differentia igitur ab Oppoſitione Solis eſt 1′ 27″, & hoc rursùs divido per correctum horarium Lunæ à Sole motum 34′ 50″, & Quotiens eſt 2′ 31″, quæ auferendæ ſunt à tempore priùs invento, quia locus Lunæ ſequitur locum Solis, & reſtat tempus veri Plenilunii, 26 die *Aprilis*, horis à meridie 7. 45′ 44″. quo tempore, Sol eſt in gr. 16 8′ 29″ ♉, & Luna in gr. 16 8′ 31″ quocirca tempus exaratum veri Plenilunii accidit die 26 *Aprilis*, hor. 7 45′ 40″. Ad hoc tempus iterùm examino motus Solis & Lunæ veros, ut in ſequente Synopſi videre licet.

De emendatione temporis.

Plenilunium Menſis *Aprilis* anni 1659.

	Sig.	gr.	′	″.		Sig.	gr.	′	″.
Medius motus Solis	1	14	33	35	Medius motus Lunæ	7	18	57	52
Apogæum Subtr.	3	6	43	20	Apogæum Subtr.	2	22	40	15
Anomalia Media	10	7	50	15	Anomalia media	4	26	17	37
Æquatio Add.		1	34	54	Æquatio Subtr.		2	49	23
Verus locus Solis à Terrâ.	1	16	8	29	Verus locus Lunæ à Terrâ.	7	16	8	29

Hinc lucidiſſimè apparet loca Solis & Lunæ è diametro eſſe oppoſita, quapropter concludo tempus veri Plenilunii exquiſitè peractum eſſe.

	Sig.	gr.	′	″.
Verus motus Lunæ	7	16	8	29.
Nodus Boreus Subtr.	7	23	25	24.
Argumentum latitudinis	11	22	33	5.

Deniquè, Cum Argumento latitudinis Lunæ invenio ejus Reductionem 1′ 48″, loco Lunæ in Orbitâ addendam eſſe, ut in Ecliptica ſit in gr. 16 10′ 17″ ♏, quo cognito, divido Reductionem per motum horarium Lunæ à Sole verum, & Quotiens 3′ 6″ eſt tempus Reductionis, quod (ut ex loco Lunæ apparet) hic ſubtrahendum eſt.

		D.	Ho.	′	″.
Tempus medium veri Plenilunii	*Aprilis*	26	7	45	40.
Tempus Reductionis Subtr.				3	6.
Tempus exaratum veri Plenilunii	*Aprilis*	26	7	42	34
Æquatio temporis Add.				9	56.
Tempus apparens veri Plenilunii	*Aprilis*	26	7	52	30.

Præ-

Præceptum XIII.

Horarium motum Solis & Lunæ verum, & Parallaxes eorum Horizontales; itemque Semidiametrum Solis, Lunæ, & Umbræ terrenæ reperire.

Horariis ...ibus, Parallaxibus, & ...idiame- ☉, ☽, & ...bræ terræ. ...fol.

INgredere Canonem Horizontalium Parallaxium, Horariorum motuum, & Semidiametrorum Solis & Lunæ: & cum Anomalia Solis excerpe ejus Semidiametrum, Horizontalem Parallaxin, & Motum horarium: tunc ab aggregato Horizontalis Parallaxeωs Solis & Lunæ, auſer Semidiametrum Solis, & habebis Semidiametrum Umbræ Terræ apparentem.

Exempl. In præcedenti Præcepto, Anomalia Solis inventa eſt Sig. 10. gr. 7 50′ 15″, & igitùr Horarius ejus motus eſt 2′ 25″. Horizontalis Parallaxis 2′ 20″, & Semidiameter ejus 16′ 9″.

Rurſus cum Anomalia Lunæ Sig. 4. gr. 26 17′ 37″, invenio Horizontalem ejus Parallaxin 60′ 19″. Horarium motum 37′ 14″. & Semidiametrum ejus, 16′ 38″.

...li duo in- ...endi ap- ...ntem Se- ...ametrum ...ræ Terræ.

I.			II		
Parallaxis Solis Horizontalis	2′	20″	Perficitur etiam facili negotio ſic, per Cap. 23. Lib. 4.		
Parallaxis Lunæ Horizont.	60	18			
Aggregatum	62	38	à Parallaxi ☽ horizontali.	60′	18″
Semidiameter Solis Subtr	16	8	auſero Semiang. Coni	13	48
Semidiameter umbræ terrenæ	46	30.	Reſtat Semid. Umbræ. ut antè.	46	30

Demonſtrationem hujus habet Lector Lib. 4. Cap. 22.

Præceptum XIV.

Quæ Plenilunia ſint Ecliptica.

...τῆς Ἐκ... ...ως Σε... ...ξῆς. ...mæi ...ήριον. ...minos E- ...ium Lunæ ...minare.

HUjus rei ſunt duo *κριτήρια*, unum *Ptolemæi*, alterum *Nicolai Copernici*; *Ptolemæi κριτήριον* hoc eſt.

Si ſub ipſum medium Plenilunium, medius Lunæ locus diſtet ab alterutro Nodorum minùs gr. 15 12′ ſecundum vel contra Signorum ſucceſſionem, Plenilunium illud Eclipſin patiatur.

Exemplum. Tempore Plenilunii prædicti Menſe *Aprilis* 1659. die 25 hor. 23 5′ 19″. medius motus Lunæ eſt Sig. 7. gr. 14 12′ 12″, & motus Nodi ejus borei Sig. 7. gr. 23 36′ 2″, ſic inter locum Lunæ & Nodum ejus boreum eſt tantùm gr. 9 24′ 20″. Undè infero Plenilunium hoc Eclipſin perpeſſum eſſe.

Nicolai Copernici *κριτήριον hoc modo ſe habet.*

...rnici ...ήριον.

Si tempore veri Plenilunii Latitudo ejus minor ſit ſummâ Semidiametrorum Lunæ & Umbræ Terræ, Luna Eclipſin patietur: Sin vero major, Eclipſin non pati poteſt eo Plenilunio.

Exemplum. In dictâ Eclipſi, latitudo ejus tempore veri Plenilunii eſt 38′ 51″, & Summa Semidiametrorum 63′ 8″, quia igitùr latitudo Lunæ minor eſt prædictâ Summâ, aſſero Plenilunium eundem Eclipſin perpeſſum eſſe.

Præceptum XV.

Magnitudinem Eclipſeos Lunaris reperire.

QUantitas Deliquii Lunaris ex Scrupulis Diametri Lunæ deficientibus cognoſcitur, quos vocant Digitos *Aſtronomi*, qui in Sole & *Lunâ* ſtatuuntur eſſe 12. Sciendum tamen eſt Diametrum Umbræ multò majorem eſſe *Lunæ* Diametro, ex quibus uſitatè computatur triplicem eſſe Lunæ defectum; Partialem, Totalem ſine morâ, & Totalem cum morâ; omnia quæ oriuntur ex latitudine Lunæ ab Eclipticâ. Modus autem inveniendi Eclipſeos magnitudinem hic eſt. — περὶ τῶν δακτύλων ἐκλειπτικῶν.

Cum inveneris veram *Lunæ* latitudinem, ejus Semidiametrum, & Semidiametrum Umbræ Telluris, ut antè mandavimus, auferre oportet latitudinem Lunæ ex aggregato earundem Semidiametrorum, & relinquitur Pars Deficiens, quâ inventâ, ſic nobis ratiocinandum eſt. Ut Diameter *Lunæ* eſt in proportione ad 12. Digitos: ità ſe habet Pars Deficiens, ad Digitos, qui Eclipſin perpeſſi ſunt. Veluti in prædictâ Eclipſi, Menſe *Aprilis* 1659. (de qua priùs diſſeruimus) vera Lunæ latitudo inventa eſt 38′ 51″, & Semidiameter Lunæ apparens 16′ 38. Umbræ verò 46′ 30″. ut ſit ſumma utriuſq; ſemidiametri 63′ 8″ ut antè. Auferatur deindè ex illâ Latitudo *Lunæ*, & reſidua eſt Pars Deficiens, 24′ 17″.

Per Logarithmos ſic eſt Operatio. — Forma duplex.

Digiti 12. ſeu Scrup. 720.		2857332.
Pars deficiens 24′ 17″. vel 1457″.		3163459.
	Summa.	6020791.
Diameter Lunæ 33 16 vel 1996.		3300160.
Digiti Ecliptici 8. 45′ 34″, vel 525 $\frac{34}{60}$.		2720631.

Prior.

Alitèr per Logarithmos Logiſticos.

A Logarithmo Logiſtico Scrupulorum deficientium, aufer Logarithmum Logiſticum duplicatæ Diametri Lunæ, & relinquitur Logarithmus Logiſticus digitorum eclipticorum quæſitus. — Alia forma per Logarithmos Logiſticos.

Exemplum.

Scrupula deficientia	24′ 17″	960716.
Diameter Lunæ dupla gr.	1 6′ 32″.	1004480.
Digiti Ecliptici, ut antè Dig. 8. 45′. 34″.		956227.

Tab. fol. 1.

Præceptum XVI.

Scrupula & Tempus Incidentiæ in Lunari Eclipſi elicere.

IN 37. Capite 4. Libri demonſtravimus hanc Propoſitionem enodare per Doctrinam Trigonometriæ, quam Inſtitutionem quia curtatior eſt aliis, hic ſequemur. — Περὶ χρόν. Ἐξάκοσμ. Ἐμπλήσεως.

In Exemplo priori, Summa Semidiametrorum *Lunæ & Umbræ Terræ* in ſecunda reducta, ſunt 3788″ & Latitudo *Lunæ* 2331″;

Operatio.

Summa Semidiametr. Lunæ & Umbræ	3788″	Aggreg. 6119	---	3786680.
Latitudo Lunæ	2331	Differ. 1457	---	3163459.
		Summa.		6950139.
Scrupula Incidentiæ 49′ 46″. vel.	2986.	Semi-ſum.		3475069.

empus inci- entiæ.

Poſteà hæc Scrupula Incidentiæ 49′ 46″, divido in motum horarium Lunæ à Sole verum 34′ 49″, & acquiro tempus Incidentiæ hor. 1 25′ 45″, quod duplicatum, dat totalem durationem iſtius Eclipſeos ho. 2 51′ 30″. Sin verò Eclipſis totalis ſit cum morâ, invenire oportet Scrupula Incidentiæ & moræ dimidiæ ſimùl, & Scrupula moræ dimidiæ inſuper, quod quomodò efficiatur priori Libro videndum eſt.

crupula inci- entiæ & mo- dimidiæ ſi- ul.

Præceptum XVII.

Intervallum veræ ☍ & viſæ ☌ ab obſcuratione maximâ reperire.

l. 130.

CUm viſâ latitudine Lunæ à Sole in Eclipſi Solari, ſivè verâ latitudine in Lunari Eclipſi, ingredere Canonem cui titulus [*Canon diſtantiæ Conjunctionis vel Oppoſitionis ☉ & ☽ à maximâ Obſcuratione*] & habebis diſtantiam quæſitam, quam divide per motum horarium, &c.

Exemplum Latitudo *Lunæ* in priori Eclipſi eſt 38′ 51″. Merid. deſc. idcircò intervallum veræ Oppoſitionis & maximæ Obſcurationis eſt 3′ 23″, quod diviſum per horarium motum Lunæ à Sole, dat Scrupula 5′ 50″. addenda, tempus igitùr medium Eclipſeos & maximæ obſcurationis fit horis 7. 58′ 20″.

Præceptum XVIII.

Quomodò vera Lunæ Latitudo ad initium & finem Eclipſeos inveniatur.

titudo Lunæ initium & em Eclip- os.

AD inveniendam Lunæ latitudinem principio & fine Eclipſeos (ut Eclipſi Lunæ aptiùs deſcribatur in Plano) operæpretium erit ſi oſtenderimus quomodò invenias latitudinem ejus priocipio & fine Eclipſis; quare ſumito Scrupula Incidentiæ & motum Solis competentem tempori Incidentiæ, cujus ſummam ſubtrahe ab Anomaliâ Latitudinis Lunæ ad tempus veri *Plenilunii*, & habebis Anomaliam latitudinis Lunæ, tempore Principii Eclipſeos Lunæ; deindè adde illam ad Anomaliam Latitudinis tempore veri Plenilunii, & habebis eandem fine Eclipſeos, cujus auxilio invenias veram illius latitudinem, per Præceptum 10.

Exemplum. In Eclipſi præmemoratâ motus Solis tempori Incidentiæ conſentiens eſt 3′ 27″. qui additus Scrupulis incidentiæ 49′ 46″ facit 53′ 13″: auſer hæc ab Argumento Latitudinis tempore veri Plenilunii, Sig. 11. gr. 22 33′ 5″, & relinquitur Argumentum Latitudinis ejus principio Sig. 11. gr. 21. 39′ 52″. Adde, vice verſâ, ea ad eundem, & producet Argumentum ejus Latitudinis fine Sig 11 gr. 23 26′ 18″. Hinc verâ illius Latitudo principio eſt 43′ 25″ & fine 34′ 16″. ſemper Meridiana deſcendens. Quod erat à nobis demonſtrandum.

Præceptum XIX.

Epilogus Calculi prædictæ Eclipſeos Lunaris.

		Dies	Ho.	'	"
Oppoſitio media Luminarium	Anni 1659. April.	25	23	5	19.
Intervallum mediæ & veræ ☍	Add.		8	40	21.
Tempus medium veræ ☍	April.	26	7	45	40.
Locus Solis verus		♉	16	8	29
Locus Lunæ Eccentricus		♏	16	8	29.
Anomalia latitudinis Lunæ vera à ☊.		11	22	33	5.
Latitudo Lunæ vera	M. D.			38	51.
Reductio	Add.			1	48.
Horarius motus Lunæ à Sole verus				34	49.
Tempus Reductionis	Subtr.			3	6.
Tempus adæquatum veræ Oppoſitionis	April.	26	7	42	34
Æquatio temporis	Add.			9	56.
Tempus apparens veræ ☍	April.	26	7	52	30.
Semidiameter Lunæ				16	38.
Semidiameter Umbræ terrenæ				46	30.
Summa Semidiametrorum				63	8.
Pars Deficiens				24	17.
Ergò Digiti Ecliptici	Dig.		8	45	34.
Scrupula Incidentiæ				49	46.
Tempus Incidentiæ			1	25	45
Tota duratio			2	51	30
Intervallum veræ ☍ *& maximæ obſcurationis*	Add.			5	50.
Initium Eclipſis in Meridiano Londinenſi			6	32	35.
Medium defectûs			7	58	20.
Finis			9	24	5.
Latitudo Lunæ ad Eclipſis { Initium	M D.			43	25.
Latitudo Lunæ ad Eclipſis { Finem	M D.			34	16.

Calculus Eclipſis D.

Præceptum XX.

De Typis Eclipſium Lunarium in Plano deſcribendis.

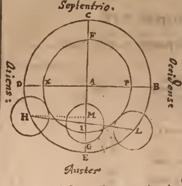
Delineatio Eclipſis Lunæ in Plano.

AD delineandam Eclipſin Lunarem in plano, hæc debent eſſe cognita; Semidiameter Lunæ, Semidiameter umbræ terræ, & Latitudo Lunæ vera, tàm ad initium, quàm ad finem Eclipſeos. Dein pro Typo præcisè repræſentando formetur linea recta in 70. partes diſtributa, & ex eâ deſcribatur Eclipſis lunaris hoc pacto.

Exemplum. In Eclipſi prædictâ, Semidiameter Lunæ eſt 16′ 38″. Semidiameter umbræ 46′ 30″. Summa Semidiametrorum 63′ 8″. Item Latitudo Lunæ ad principium Eclipſis eſt 43′ 25″. & ad finem 34′ 16″ ſemper Merid.

 In

exemplum.



In Diagrammate hujus Eclipſis, A D eſt aggregatum Semidiametrorum Lunæ & Umbræ 63′ 8″. intervallo igitùr A D, centroque A, deſcribatur Circulus B C D E, cujus Diameter B A D eſt portio Eclipticæ. Ex eodem centro A, intervallo A X deſcribatur alius circulus F X P quantitate Semidiametri Umbræ 46′ 30″. Dein in lineâ C E ab Eclipticâ B D notetur Latitudo Lunæ in principio Eclipſis A I 43′ 25″. Merid. quæ ex lineâ parallelâ ducatur verſus Occaſum ad L. Item Latitudo Lunæ in fine notetur in eadem lineâ ab A ad M, quæ ex rectâ quoq; lineâ porrigatur parallela verſus Ortum ad H, quo peracto, connectantur L & H rectâ lineâ, quæ erit via Lunæ tempore Eclipſeos. Poſtea deſcribantur tres Lunulæ, prima in L, ſecunda in I, tertia in H. Prima repræſentabit principium Eclipſis, ſecunda medium Eclipſis, poſtrema in H finem. Eodem modo & reliquos Eclipſium Typos formare poteris.

Præceptum XXI.

l 'Ἐκλει- ν Ἡλια-

De Solis Eclipſi, & de inveniendo quando foret, quandoque non.

iat Eclip-

PRiuſquam ad Calculum Solaris Eclipſeos devenitur, neceſſe foret an Eclipſis accidet, aut non, demonſtrare. Notandum enim eſt Solem in qualibet Conjunctione Eclipſin non pati, ſed cum continget juxta unum Nodorum, ubi Luna parvam, aut nullam Latitudinem in Conjunctione ſuâ cum Sole habet, quapropter operæpretium fore judicaverim duas Regulas huic propoſito inſtitutas inſerere, per quas dignoſcendum eſt quando Sol Eclipſin patietur, quandoq; non: quarum prima pluris apud veteres ſemper fuerit, etiamſi poſterior longè eſt accuratior quamvis difficilior, quas juſto ordine hic depoſuimus.

Regula prima, ſeu Ptolomæi *κριτήριον hoc eſt.*

la 1.

Si medius motus latitudinis Lunæ tempore mediæ Synodi diſtet à Nodo Boreo minus gr. 20 40′, vel ab auſtrali Nodo minus gr. 11 22′ Sol defectionem perpeti poſſit in illo Coitu.

nplum 1.

Exemplum. Tempore mediæ Conjunctionis ☉ & ☽, Novembre 1659. die 3. horis 21 51′ 40″. medius motus latitudinis Lunæ diſtat à Nodo Boreo gr. 9. 57′ 10″. tantùm, idcircò Eclipſin fieri poſſe oſtendit.

Regula ſecunda, ſive Copernici *κριτήριον.*

la 2.

Si *apparens Lunæ latitudo*, ſub viſam Synodum minor ſit ſummâ duarum Semidiametrorum apparentium Solis & Lunæ, Sol Eclipſin patietur. Sin verò major, nullam illo tempore defectionem ſentiet.

Exemplum.

Exemplum. In prædictâ Synodo, apparens Lunæ latitudo tempore viſibilis Syzygiæ eſt ſcrup. 9 3″. quæ minor eſt Summâ Semidiametrorum Luminarium, quapropter infero Solem Eclipſin perpeſſum fuiſſe. Exemplum 2.

Hæc autem Regula non æquè eſt uſitata atq; prior, quia nunquam operatur donec Calculus penè finitur, idcircò præcedens utere, & certum ſit Lunam eclipticis limitibus contineri, ne fortè oleum & operam (quod aiunt) perderes. Monitum.

Præceptum XXII.

Gradum Nonageſimum Eclipticæ invenire.

De gradu Nonageſimo.

PRimò, Rectam *Solis* Aſcenſionem invenito ſecundum doctrinam Lib. 3. Prob. 2. traditam, cui adde pomeridianum tempus reductum in gradus & minuta Æquatoris, & ſumma, ſi non excedit gr. 360. eſt recta Aſcenſio *Medii Cæli*, ſin verò major, ſubtrahito ab eâ gr 360 & reliqua erit Recta Aſcenſio perquiſita, quæ in Tabulâ Rectarum Aſcenſionum dabit Medium Cœli & Angulum Meridianum. Dein ad inveniendam *Medii Cæli* altitudinem, addere oportet declinationem *Medii Cæli*, in Signis borealibus, ad Altitudinem *Æquatoris* loci, ut altitudo *Medii Cæli* habeatur. Contrario modo, in Signis auſtralibus, fieri debet, ut altitudo ejuſdem evadat.

Exemplum.

			gr.	′.
Locus Solis verus		♏	22	9.
Aſcenſio ejus Recta			229	43.
Tempus in gradus Æquatoris reductum			40	1.
Ergò Aſcenſio Recta M. C.			269	44.
Medium Cæli in Eclipticâ		♐	29	45.
Angulus Meridianus			89	53.
Declinatio Medii Cæli	Merid.		23	31.
Altitudo Æquatoris Londini			38	28.
Altitudo Medii Cæli quæſita			14	57.

Poſtremò, Diſtantia Medii Cœli à gradu Nonageſimo acquiritur, ſi Coſinui Anguli Meridiani, addatur Cotangens altitudinis M. C. tunc enim emergit Tangens diſtantiæ Medii Cœli à Nonageſimo Eclipticæ gradu, quæ addenda eſt Medio Cœli à Capricorno ad Cancrum ſubtrahenda autem à Cancro ad Capricornum, ut gradus Nonageſimus proſiliat. Regula.

Exemplum.

					gr.	′.
Angulus Meridianus gr. 89 53′.	coſin.	730882.	Medium Cœli	♐	29	45.
Altitudo Medii Cæli gr. 14 57′.	cotang.	1057346.	Arcus Subtr.		0	26.
Diſtantia M.C. à gradu Nonageſimo gr. 0.26′.	tang.	788228.	Grad. Nonageſ.	♐	29	19.

Ad cognoſcendum autem an Ecliptica hæc Synodus cadit in Orientali aut Occidentali Quadrante Signiferi, videndum eſt utrum locus Solis major, aut minor ut Nonageſimo gradu: Si enim major ſit, Eclipſis in Orientali, ſin verò minor, in Occidentali Quadrante accidit. Veluti in præcedente noſtro Exemplo, ubi

An Synodus Luminarium Ecliptica cadat in Orientali aut Occidentali Quadrante Signiferi.

		gr.	′.
Gradus Nonageſimus eſt	♐	29	19.
Verus locus Solis	♏	22	9.
Diſtantia Solis à 90. ad occaſum		37	10.

Præ-

Præceptum XXIII.

Altitudinem Solis & Lunæ ſupra Horizontem reperire.

ltitudine

IN *Parte* 3. *Cap.* 1. *Probl.* 10. demonſtravimus Altltudinem Solis inveſtigari aliquo tempore dato, ſecundum quam doctrinam, Altitudo Lunæ & cæterorum Planetarum inveniatur. Hoc autem obſervandum eſt, quod ſi Planeta latitudinem habet ab Eclipticâ, invenienda vobis eſt ejus Declinatio & recta Aſcenſio, velut prædocti eſtis, *Lib.* 3. *Cap.* 2. *Probl.* 1. quod autem facillùs idem efficiatis per Tabulas poſteà inſertas, huic propoſito ſupputatas, & tunc operare ſicut anteà. Ad hoc demonſtrandum, vobis dedero Exempla inveniendæ altitudinis Solis & Lunæ tempore oblato.

s.

Pro Altitudine Solis.			*Pro Altitudine Lunæ,*		
Radius, gr. 90		1000000	*Radius, gr.* 90		1000000
Altit. Poli, gr. 51 32′	ct.	988415	*Altit. Poli, gr.* 51 32′	ct	990008
Diſtantia ☉ *à Merid. gr.* 40 1′ 0″	cs.	988415	*Diſtantia* ☽ *à Merid.* 39° 48′ 54″	cs	988543
Arcus 1. *gr.* 31 19′ 8″	t.	978423	*Arcus* 1 *gr.* 31 23′ 38″	t	978551
Gr. 108 22′ 14″ diſtantia ☉ à Polo Boreo.			Gr. 107 38′ 17″ diſtantia ☽ à Polo.		
Gr. 31 19 8 Arcus 1 ſubtr.			Gr. 31 23 38 Arcus 1 ſubtr.		
Gr. 77 3 6 Arcus 2			Gr. 76 14 39 Arcus 2.		
Arcus 1 *gr.* 31 19′ 8″	cs.	993160	*Arcus* 1 *gr* 31 23′ 38″	cs	993126
Elevatio Poli, gr. 51 32″	1.	989374	*Elevatio Poli, gr.* 51 32′	a	989375
Arcus 2 *gr.* 77 3′ 6′	cs.	935039	*Arcus* 2 *gr.* 76 14′ 39″	cs	937618
		1924413			1926993
Altitudo Solis, gr. 11 51′ 4″	s.	931253	*Altitudo Lunæ, gr.* 12 35′ 52″	a	933867

Præceptum XXIV.

Angulum Parallacticum inveſtigare.

ngulo Parallactico.

SUbtrahatur Cotangens Solaris Altitudinis à Tangente ejus diſtantiæ è Nonageſimo (Radio primùm addito minori Logarithmo) & relinquetur Coſinus Anguli Parallactici, vel Eclipticæ cum circulo verticali.

Exemplum.

Diſtantia Solis à gradu Nonageſimo, gr. 37 10′	t	987980
Altitudo Solis, gr. 11 51′ 4″	ct	1067811
Angulus Parallacticus, gr. 80 50′ 42″	cs	920169

Præceptum XXV.

Parallaxin Lunæ à Sole in Circulo Altitudinis tempore Eclipſeos invenire.

τῆς παραλλάξεως Σε-... Parallaxi ...titudinem, modi ſeu ...æ. ... fol. ...r.

UT habeatur Parallaxis Lunæ in circulo verticali quovis tempore, operæpretium eſt ſcire Parallaxin Lunæ Horizontalem, & Altitudinem ejus ſupra Horizontem, ab his enim omnes cæteræ pendent Parallaxes, puta in Altitudinem, Longitudinem, & Latitudinem, ut infra docebitur. Modus autem inveniendi Parallaxes Lunæ Horizontales, hic eſt.

Primùm cum Anomaliâ Lunæ mediâ ingredi oportet Canonem Parallaxium Lunæ Horizontalium, ut in *Precept.* 23. edoctus es, & habebis Parallaxin

laxin Lunæ Horizontalem. Dein ingredere Canonem Lunæ Parallaxium in circulo Altitudinis cum Parallaxi Lunæ Horizontali in fronte, & ejus Altitudine ſupra Horizontem in latere ſiniſtro, & invenies in angulo communi Parallaxin Lunæ in Circulo verticali quæſitam. Tab. fol.

Exemplum. Tempore veræ Synodi Solis & Lunæ, anno 1659. die 4. *Novembris*, hor. 2 40′ 4″. Parallaxis Lunæ Horizontalis eſt 59′ 49″, & Altitudo ejus ſupra Horizontem, gr. 12 35′ 52″ cum his ingredior Canonem Parallaxium Lunæ in circulo Altitudinis, & accipio in angulo communi Parallaxin Lunæ in circulo verticali 58′ 36″. Eodem modo invenienda ſit Parallaxis Solis in quâlibet ipſius Altitudine ſupra Horizontem; ut in hoc Exemplo, ubi ex Altitudine Solis, gr. 11 51′ 4″, & Parallaxi ejus Horizontali 2′ 23″, Parallaxis in Circulo verticali invenitur 2′ 20″. Tab. fol.

Parallaxis Lunæ in Altitudinem.	58′	36″
Parallaxis Solis ſubtr.	2	20
Parallaxis Lunæ à Sole.	56	16

Methodus altera inveniendi has Solis & Lunæ Parallaxes in Circulo verticali, ſecundum Doctrinam in 3. Lib. 3. Cap. 7. Probl. traditam.

Poſterior.

		gr.	′	″
Logarith. Semid. Terræ	183569			
Logar. diſt. ☉ à Terrâ	499440	gr.	′	″
Tang.	684129	0	2	23
Adde		45		
Cotang.	999940	45	2	23
Tang.	1009048	50	55	32
Tang.	1008988	50	53	12
Parallaxis ☉			2	20

		gr.	′	″
Logarith. Semid. Terræ	183569			
Log. diſtantia ☽ à Terrâ	359500	gr.	′	″
Tang.	824069	0	59	50
Adde		45		
Cotang.	998488	45	59	50
Tang.	1009627	51	17	56
Tang.	1008115	50	19	20
Parallaxis ☽			58	36

Præceptum XXVI.

Parallaxin Lunæ à Sole in Longitudinem & Latitudinem explorare.

TAngenti Parallaxeωs Lunæ à Sole in Altitudinem, addatur Coſinus anguli Parallactici, ſeu Eclipticæ cum Verticali, & eorum aggregatum (Radio deducto) eſt Tangens Parallexeos Lunæ à Sole in Longitudinem. De Parallaxi in Longitudinem.

Exemplum.

Parallaxis Lunæ à Sole in Altitudinem 56′ 16″	Tang.	821401
Angulus Parallacticus, gr. 80 50′ 42″	Coſin.	920169
Parallaxis Lunæ à Sole in Longitudinem 8′ 57″	Tang.	741570

Ut Parallaxis Lunæ à Sole in Latitudinem facillimè habeatur, neceſſe eſt addere ſinum anguli Parallactici ſinui Parallaxeωs Lunæ à Sole in Altitudinem, & ſumma (deducto Radio) eſt ſinus Parallaxeωs in Latitudinem. De Parallaxi in Latitudinem.

Exemplum.

Parallaxis Lunæ à Sole in Altitudinem 56′ 16″	Sin.	821395
Angulus Parallacticus, gr. 80 50′ 42″	Sin.	999443
Parallaxis Lunæ à Sole in Latitudinem 55′ 33″	Sin.	820838

Præceptum

Præceptum XXVII.

Horarium motum Lunæ à Sole viſum in aliquo tempore dato definire.

Hoc Præceptum tribus Regulis gubernatur.

gulæ.

1. SI Eclipſis Solis accidit in Orientali Quadrante Signiferi, & Parallaxis Longitudinis decreſcit, vel ad initium temporis major fuerit quàm ad finem, ſubtrahito differentiam Parallaxis Longitudinis in unâ horâ, vel in quolibet intervallo temporis à vero horario motu *Lunæ à Sole*, ſive à motu oblato, quovis temporis intervallo. Si verò Parallaxis Longitudinis creſcit, adde prædictam differentiam.
2. Si *Sol* toto tempore dato verſetur in occidentali Quadrante, & Parallaxis Longitudinis decreſcit, vel ad temporis initium major fuerit quam ad finem, adde differentiam Parallaxeos longitudinis horario motui Lunæ à Sole vero, & alioquin ſubtrahe eandem ſi Parallaxis longitudinis creſcit, ſeu ad temporis Initium fuerit minor quàm ad finem.
3. Si vera Synodus Luminarium accidet in Nonageſimo gradu Eclipticæ, ita ut pars prior Eclipſis ſit in orientali, & poſterior in occidentali Quadrante, tunc ſubtrahe differentiam Parallaxeos ab horario motu Lunæ à Sole, & relinquetur motus horarius viſus, &c.

plum.

Exemplum. Tempore veræ Synodi Luminarium in *Novemb.* 1659. horis 2 40′ 4″; ſit datus per Præceptum 13. motus horarius Lunæ à Sole verus 33′ 54″, & Parallaxis longitudinis eidem tempori 8′ 57″, jam quia Sol toto tempore dato verſatur in Quadrante Signiferi occidentali ſecundum 22. Præceptum, inveſtigo igitur Parallaxin Longitudinis ad ſemiſſem horæ poſt veram Synodum, quæ invenio 12′ 29″. eſt autem harum Parallaxium differentia 3′ 32″, & quoniam Parallaxis longitudinis in Occidentali Quadrante creſcit, idcircò juxta Regulam 2. auſero eandem differentiam à ſemi-horario motu Lunæ à Sole verò 16′ 57″, & conſurget motus Semi-horarius Lunæ à Sole viſus 13′ 25″ poſt veram Synodum.

Præceptum XXVIII.

Intervallum veræ & viſæ Synodi Luminarium indagare.

tiæ viſæ
æ ac ve-

TEmpori veræ Luminarium Synodi colligenda eſt Parallaxis Longitudinis Lunæ à Sole, quæ ſi minor eſt viſibili motu horario, divide eandem in motum Lunæ horarium viſum, & exibit intervallum veræ & viſæ Synodi, ſubtrahendum à tempore veræ Synodi in Quadrante orientali, & addendum in occidentali. Si verò Parallaxis longitudinis major eſt horario motu Lunæ à Sole viſibili, tunc exime viſum motum horarium parallaxi longitudinis, & reliquam divide in viſum horarium Lunæ à Sole motum, & proveniet temporis intervallum ſupra horam unam inter veram & viſam Synodum, addendum tempori veræ Luminarium Synodi, vel auferendum ab eodem, ut accidit in Orientalibus vel in Occidentalibus partibus Eclipticæ, veluti ante prædictum.

Exemplum. Tempore veri Synodi, Parallaxis Lunæ à Sole in longitudinem eſt 8′ 57″, & Semi-horarius motus Lunæ à Sole viſus eſt 13′ 25″, tum dico per *Logiſticam Arithmeticam*, ut 13′ 25″ ad Scrup. temporis 30′ :: ita 8′ 57″. ad intervallum veræ & viſæ Synodi, 20′ 1″, quod hic addendum

Tempus

		Ho.	′	″.
Tempus veræ Synodi Londini		2	40	4.
Intervallum veræ & viſæ ☌	Add.		20	1.
Tempus viſæ Synodi Londini		3	0	5.

Si verò ſcire cupias an hoc tempus rectè ſit inventum, aut non, quære Parallaxin longitudinis tempore viſæ Synodi, & veram diſtantiam Solis & Lunæ; ſi enim hæ duæ æquales forent, tempus viſæ Synodi rectè inventum eſt. Sin alitèr, calculus eſt corrigendus.

Exemplum. Tempore viſæ Synodi invenio Parallaxin longitudinis 11′ 20″, & diſtantiam Lunæ à Sole 11′ 20″, & quia æquales ſunt, infero viſam Synodum verè inventam.

Δοκιμασία. Examen temporis viſæ ſynodi, & ejus emendatiò ſi opus fuerit.

Præceptum XXIX.

Latitudinem Lunæ à Sole viſam, ſub ipſam Synodum reperire.

TEmpore viſæ Synodi invento, per verum horarium motum computet oportet verum motum Lunæ reſpondentem intervallo veræ & viſæ Synodi, quem adde aut ſubtrahe vero loco Lunæ ſub veram Synodum, prout apparens Synodus præcedit aut ſuccedit veram, & ex hoc obtineas verum ejus locum tempore viſæ Synodi. Eodem modo redue locum Nodi ejus, tempori viſæ Synodi, tunc aufer motum Nodi ejus borei à vero loco *Lunæ*, & reliqua eſt Anomalia latitudinis *Lunæ* tempore viſæ Synodi, ex quâ, per 10. Præceptum, invenias Latitudinem ejus veram. Tum ſicut antea edoctum eſt, eodem momento invenire oportet Parallaxin *Lunæ* à *Sole* (quæ in his Septentrionalibus terrarum locis ſemper Auſtralis eſt;) Dein perpendite ſi ejuſdem affectionis fuerint, hoc eſt, aut ambo Septentrionales, aut Auſtrales: ſi fortè ſint, adde Parallaxin ejus & latitudinem ſimul; ſin verò diverſæ, minorem aufer à majori, ſic enim aggregatum ſive reſiduum viſibilis erit Latitudo *Lunæ* tempore viſæ Synodi, vel Boream verſus, vel Auſtrum verſus, quod ſciendum eſt ex proprietate majoris numeri; viſa enim Latitudo *Lunæ* ejuſdem erit denominationis & ſpeciei, cujus major numerus eſt, &c.

De latitudine ☽ viſâ ſub ipſam apparentem σύνοδον.

Illuſtratio.	S.	gr.	′	″.
Locus Lunæ tempore veræ Synodi	m	22	8	47.
Motus Lunæ intervallo veræ & viſæ ☌ congruens Add.			12	10.
Locus Lunæ verus ad tempus viſæ Synodi	m	22	20	57.
Nodus ejus boreus	m	13	26	1.
Anomalia Latitudinis Lunæ ſub viſam Synodum	0	8	54	56.
Latitudo ejus vera Borea			46	26.
Parallaxis Latitudinis Lunæ à Sole Auſtrina			55	29.
Latitudo Lunæ à Sole viſa Auſtr.			9	3.

Præceptum XXX.

Digitos Eclipticos in Eclipſi Solis numerare.

AUferatur Latitudo Lunæ viſa è Summâ Semidiametrorum Solis & Lunæ, & reliqua erunt Scrupula Diametri Solis deficientia, tùm dico,

Ut Diameter Solis : ad Digitos 12 :: ita Scrupula deficientia : ad Digitos Eclipticos.

Quantus ſiat defectus ☉.

Operatio per Logarithmos Logiſticos.

Scrupula deficientia 23′ 59″	960176.	
Diameter Solis dupla gr. 1 6′ 8″	1004227.	Subtr.
Digiti Ecliptici 8. 42′ 13″.	955949.	

Eadem operatio agenda eſt quoque per Tabulam Sexagenariam, ſive per Logarithmos, ſicut videndum eſt in *Logiſticâ* meâ *Arithmeticâ*.

Præceptum XXXI.

Scrupula & Tempus Incidentiæ & Repletionis, in Solis Eclipſi diſcernere.

PRimùm, Reducantur ſumma Semidiametrorum Luminarium & Latitudo Lunæ in ſcrupula ſecunda, tunc ſumantur Summa & differentia, & earum Logarithmi, nam ſemiſſis Summæ Logarithmorum (ſecundum Trigonometriam noſtram) erit Logarithmus Scrupulorum Incidentiæ.

Exemplum.

Summa Semidiametrorum ☉ & ☽ in Scrup. ſecundis	1982″.	Sum. 2525″.	340266.
Latitudo Lunæ viſa	543.	Differ. 1439	315806.
		Summa	656032.
Scrupula Incidentiæ 31′ 46″ in Scrupulis verò ſecund. 1906″.		½ Summæ	328016.

Poſtremò, ad inveniendum tempus Incidentiæ, & Repletionis, quærito horarium motum *Lunæ à Sole* viſum, per Præceptum 27. pro unâ horâ ante viſam Synodum, & pro unâ horâ poſt eandem. His inventis, divide primùm Scrupula Incidentiæ per motum Lunæ à Sole viſum unâ horâ ante viſam Synodum, & habebis tempus Incidentiæ. Deinde partire eadem ſcrupula per motum Lunæ horarium viſum, unâ horâ poſt viſam Synodum, & habebis tempus *Repletionis*.

Veluti in Eclipſi Solis hic tractatâ, motus horarius Lunæ à Sole viſus, unâ horâ ante viſam Synodum, inventus eſt 26′ 18″, & unâ horâ poſt viſam Synodum 27′ 43″. His ita cognitis, divido primùm Scrupula Incidentiæ 31′ 46″. per motum horarium Lunæ à Sole viſum 26′ 18″, & acquiro tempus Incidentiæ, hor. 1 12′ 28″. Deindè partio eadem Scrupula per motum *Lunæ* horarium viſum ſcrup. 27′ 43″ & invenio tempus Repletionis, ſeu *ἀναπληρώσεως*, hor. 1 8′ 46″.

	Ho. ′ ″.
Tempus Incidentiæ	1 12 28.
Tempus Repletionis	1 8 46.
Duratio totalis	2 21 14.

Præceptum XXXII.

Intervallum viſæ Synodi & maximæ Obſcurationis perſcrutare.

CUm Latitudine Lunæ viſâ, ingredere Tabulam diſtantiæ veræ Oppoſitionis, aut viſæ Conjunctionis à maximâ obſcuratione, & diſtantiam ibi inventam,

inventam, divide per motum horarium Lunæ à Sole viſum, & Quotientem, ſecundum Tabulam, applicato tempori viſæ Synodi, & tempus habebis mediæ Eclipſeos, ſeu maximæ obſcurationis.

Exempli gratiâ. Latitudo Lunæ viſa in noſtrâ Eclipſi 9′ 3″. dat intervallum 0′ 47″ addendum, quod diviſum per viſibilem horarium Lunæ à Sole motum pro horâ poſt viſam Synodum Scr. 27′ 43″. deſignat temporis intervallum, inter viſam Synodum & maximam Obſcurationem Scr. 1 42″ addendum eſſe, ita ut medium Eclipſis eſt die 4. hor. 3. 1′ 47″, unde ablatâ Incidentiâ, colligitur

	Ho.	′	″.
Initium Londini	1	49	19.
Viſa ☌	3	0	5.
Maxima obſcuratio	3	1	47.
Finis	4	10	33.

Hoc intervallum, ut parvum, ita incertum eſt.

Præceptum XXXIII.

Latitudinem Lunæ viſam principio & fine Solaris Eclipſeos invenire.

Si ab Argumento Latitudinis Lunæ ſub viſam Synodum auferantur Scrupula Incidentiæ, & motus Solis tempori Incidentiæ congruens, prodibit Argumentum Latitudinis Lunæ ad initium Eclipſeos, quod pateſaciet ipſam veram latitudinem. Verùm ſi prædicta Incidentiæ Scrupula, unà cum motu Solis tempori Repletionis ei addantur, conflabis verum Argumentum ad finem Eclipſeos, & per hoc dabitur ipſa *Lunæ latitudo* vera. Eodem prorsùs modo ad initium & finem Eclipſeos, quæratur Parallaxis latitudinis, ut in 26 Præcepto edocti eſtis, nam ex hiſce Inveniatur ipſa latitudo Lunæ viſa, tum ad initium tum ad finem Solaris Eclipſeos.

Modus inveniendi latitudinem Lunæ viſam ad principium & finem Eclipſis. Declaratio.

Exemplum. In Eclipſi hîc tractatâ, Argumentum Latitudinis ſub *viſam Synodum* fit Sig. 0. gr. 8 54′ 55″, ex quo auſero Scrupula Incidentiæ 31′ 46″, & motum Solis tempori Incidentiæ debitum, Scr. 3′ 3″, & remanet Argumentum latitudinis Lunæ ad initium Eclipſis, Sig. 0. gr. 8 20′ 6″, & proinde Ipſa Lunæ latitudo 43′ 25″ Borea. Deindè addo eadem Scrupula Incidentiæ, & motum Solis tempori Repletionis competentem 2′ 54″, & conſurget Argumentum Latitudinis Lunæ ad finem, Sig. 0. gr. 9. 29′ 35″, ex quo proveniet ipſa latitudo Lunæ vera 49′ 25″ Borea. Poſtremò, Parallaxis Latitudinis Lunæ in principio Deliquii invenitur 55′ 17″. in fine 54′ 28″. Viſa igitùr Lunæ Latitudo in principio Eclipſis eſt 11′ 52″ Auſtrina, & in fine 5′ 3″. etiam Auſtrina.

Præceptum XXXIV.

Epilogiſmus Calculi prædictæ Eclipſeos Solaris.

		Dies	ho.	′	″.
Media Conjunctio Luminarium	Londini 1659. Novemb.	3	21	51	40.
Intervallum mediæ & veræ ☌	Add.		4	34	57.
Tempus medium veræ ☌		4	2	26	37.
Locus luminarium		♏	22	8	47.
Argumentum Latitudinis Lunæ à ☊.		0	8	42	43.
Latitudo Lunæ vera	Sept. Aſcend.			45	22.
Reductio				2	6.
Horarius motus Lunæ à Sole verus				33	54.

Calculus Eclipſeos Solis.

		Dies	ho.	′	″.
Tempus Reductionis ad.				3	43.
Tempus correctum veræ Synodi	Novemb.	4	2	30	20.
Æquatio temporis add.				9	44.
Tempus apparens veræ Synodi	Novemb.	4	2	40	4.
Quo tempore, Altitudo Solis colligitur	gr.		11	51	4.
Et Altitudo Lunæ			12	35	52.
Parallaxis Altitudinis Solis				2	20.
Parallaxis Altitudinis Lunæ				58	36.
Parallaxis Altit. Lunæ à Sole in Auſtrum vergens				56	16.
Angulus Parallacticus			80	50	42.
Parallaxis Longitudinis Lunæ				8	57.
			gr.	′	″.
Parallaxis latitudinis Lunæ				55	33.
Ad Semihoram poſt ☌ veram, Altitudo Solis datur			8	44	4.
Altitudo Lunæ			9	33	35.
Angulus Parallacticus			77	18	8.
Parallaxis Altitudinis Solis				2	21.
Parallaxis Altitudinis Lunæ				59	10.
Parallaxis Lunæ à Sole in Auſtrum				56	49.
Ergò Parallaxis longitudinis ☽ à ☉				12	29.
Et Parallaxis latitudinis				55	25.
Semihorarius motus Lunæ à Sole viſus				13	25.
Intervallum inter veram & viſam Synodum add.				20	1.
Ergò tempus apparens viſæ Synodi	Novemb.	4	3	0	5.
Quo tempore Solis Altitudo eruitur			9	48	52.
Altitudo Lunæ			10	36	37.
Angulus Parallacticus			78	27	0.
Parallaxis { Solis				2	21.
Parallaxis { Lunæ				58	59.
Sola Lunæ à Sole				56	38.
Et in Longitudinem tantùm				11	20.
In Latitudinem verſus Auſtrum				55	29.
Latitudo Lunæ vera borea				46	26.
Latitudo igitùr Lunæ viſa M. D				9	3.
Semidiameter { Solis				16	32.
Semidiameter { Lunæ				16	30.
Summa Semidiametrorum				33	2.
Scrupula deficientia				23	59.
Proveniunt igitùr Digiti Ecliptici	Dig.		8	42	13.
Scrupula Incide[illegible]				31	46.
Hæc per Horarium motum viſum diviſa, exhibent tempus Incidentiæ	Hor.		1	12	28.
Tempus Repletionis	Hor.		1	8	46.
Tota duratio			2	21	14.
Intervallum viſæ ☌ & mediæ Eclipſeos Add.				1	42.
Latitudo Lunæ viſa ad Eclipſis { Initium				11	52.
Latitudo Lunæ viſa ad Eclipſis { Finem				5	3[illegible]
Initium Eclipſis in Merid. Londini.	Hor.		1	49	19.
Medium, ſeu maxima Obſcuratio	Hor.		3	1	47.
Finis	Hor.		4	10	33.

Præ-

Præceptum XXXV.

Eclipſin Solarem in plano delineare.

DElineatio Solaris Eclipſis parùm differt à Lunari illâ, in loco autem Semidiametri Umbræ terrenæ utendum eſt Semidiametro Solis, & viſâ latitudine pro verâ, & ſic procedendum ſicut in Eclipſium Lunarium doctrinâ. Delineatio Eclipſis Solis.

Exemplum.

			′	″
Summa Semidiametrorum Solis & Lunæ	A ☉		33	2
Semidiameter Solis	A M.		16	32.
Semidiameter Lunæ	Z O.		16	30
Latitudo Lunæ viſa ad principium Eclipſis	A K.	*Auſtrina*	11	52.
Latitudo Lunæ viſa ad finem	A D.	*Auſtrina*	5	3.



His ita peractis, duco lineas K L & D E ſicut edoctus ſum in Lunari Eclipſi. Poſtea extendo lineam ab L ad E, quæ repræſentet viam Lunæ tempore hujus Eclipſeos; ſic L eſt locus Lunæ principio, Z locus ejus medio, & E locus ejus ſine, ſicut hæc figura ad oculum facile repræſentabit.

Præceptum XXXVI.

Methodus altera enucleandi Parallaxes, Supputandiq; Eclipſes Solares, ad certum Terræ locum, mirâ facilitate.

PRimùm invenienda eſt Altitudo Medii Cœli, ut ante edoctum eſt in Præcepto 22. Ratio alia computandi Eclipſin Solarem mirâ promptitudine ad aliquem terræ ſitum.

Exemplum.

Ad tempus apparens veræ ☌ Luminarium Anno 1661. Martii die 19 Hor. 21 41′ 3″.

			gr.		″.
Verus locus Solis		♈	10	13	48.
Aſcenſio Solis recta				9	24.
Tempus in gradus Æquatoris converſum			325	16.	
Aſcenſio Recta Medii Cœli			334	40.	
Medium Cœli in Ecliptica		♓	2	41.	
Angulus Meridianus			68	51.	
Declinatio Medii Cœli	Auſtrina:		10	33.	
Altitudo Æquatoris Londini			38	28.	
Altitudo Medii Cœli			27	55:	

2. Ad-

ado gra- Nonageſi- quomodo ligetur.

2. Addantur Sinus Anguli Meridiani & Coſinus Altitudinis Medii Cœli, & proveniet Coſinus Anguli Orientis, ſeu altitudinis Nonageſimi gradûs.

Exemplum.

Angulus Meridianus	gr. 68 51′ ″.	s.	9, 96971.
Altitudo Medii Cœli	gr. 27 55.	cs.	9, 94627.
Altitudo Nonageſimi	gr. 34 30 10.	cs.	9, 91598.

geſimi quà me o inveſti-

3. Addantur Coſinus anguli Meridiani & Cotangens altitudinis Medii Cœli, & habebis Tangentem diſtantiæ Medii Cœli à Nonageſimo gradu Eclipticæ ſupra Horizontem, quæ ſi addatur Medio Cœli à *Capricorno* ad *Cancrum*, vel auferatur à *Cancro* ad *Capricornum*, exſurgit gradus Eclipticæ Nonageſimus.

Exemplum.

Angulus Meridianus	gr. 68 51′ ″.	ct.	9, 55728.
Altitudo Medii Cœli	gr. 27 55	ct.	10, 27585.
Diſtantia M. C. à Nonageſimo	gr. 34 15 14.	t.	9, 83313.

S.	gr.	′	″.	
11	2	41	0.	Medium Cœli in Eclipticâ.
1	4	15	14.	Diſtantia Nonageſimi à Medio Cœli add. juxta Reg. 3.
0	6	56	14.	Gradus Nonageſimus.
0	10	13	48	Verus locus Solis.
0	3	17	34.	Diſtantia Solis à Nonageſimo ad Ortum.

s inveſti- Paral- Lunæ à ı longi- m,

4 His datis, addantur in unam ſummam tres Logarithmi, 1. *Logarithmus Logiſticus* Horizontalis Parallaxeos Lunæ à Sole. 2. Sinus altitudinis Nonageſimi. 3. Sinus diſtantiæ Solis à gradu Nonageſimo, & aggregatum, poſt ſubductionem Radii dupli, eſt Logarithmus Logiſticus Parallaxeos longitudinis Lunæ à Sole.

Exemplum.

Parallaxis Horizontalis ☽ *à* ☉	58′ 6″.	L L.	9, 98602.
Altitudo Nonageſimi	gr. 34 30 10.	S.	9, 75316.
Diſtantia Solis à Nonageſimo	gr. 3 17 34.	S.	8, 75919.
Parallaxis Longitudinis ☽ *à* ☉	1 53.	L L.	8, 49837.

Notandum obiter quotieſcunq; locus Lunæ ſit minor Nonageſimo, apparet Lunæ locus minor, quàm reverâ ſit. Si autem idem locus eodem gradu Nonageſimo major fuerit, tùm Lunæ locus apparens major eſt vero, ex quantitate Parallaxeos Longitudinis.

inve- Paral-) à ☉ in nem.

5. Addantur *Logarithmus Logiſticus* Horizontalis Parallaxeos Lunæ à Sole, & Coſinus altitudo Nonageſimi, & Summa erit *Logarithmus Logiſticus* Parallaxis Latitudinis Lunæ à Sole.

Exemplum.

Horizontalis Parallaxis ☽ *à* ☉	58′ 6″.	L L	9, 98602.
Altitudo Nonageſimi	gr. 34 30 10.	cs.	9, 91598.
Parallaxis latitudinis ☽ *à* ☉	47 53.	L L	9, 90200.

Ad

Ad Quadrantem Horæ antecedentem, videl.	Hor.	21 26′ 3″.
Aſcenſio Recta Medii Cœli erat		330 54
Medium Cœli in Ecliptica		28 45 ♒
Angulus Meridianus		69 34.
Altitudo M. C. *Londini.*		26 31.
Ergò datur,		
Gradus Eclipticæ Nonageſimus	♈	3 43 52.
Altitudo Nonageſimi		33—1--6.
Diſtantia Solis à Nonageſimo		6 29 19.
Hinc emergit Parallaxis Longitudinis Lunæ à Sole		3 35.
Horarius motus Lunæ à Sole verus		35 3.
Ergò motus Lunæ à Sole in Scrup. 15′. Horæ		8 46
Differentia Parallaxeos	Subtr.	1 42.
Motus Lunæ à Sole viſus in 15′ Horæ.		7 4.
Per quem diviſâ Parallaxi ad tempus veræ ☌ datur intervallum veræ & viſæ ☌ ſubtrahendum.	Hor.	0 4 0.
Cadit ergò viſa Synodus in diem 19 *Martii* ante merid.	Hor.	21 37 3.
Quo tempore erit Aſcenſio Recta Medii Cœli		333 40.
Medium Cœli in Ecliptica		1 38 ♓.
Angulus Meridianus		69 2.
Altitudo M. C. *Londini*		27 32.
Ergò reperitur,		
In gradu Nonageſimo	♈	6 5 56.
Altitudo Nonageſimi		34 6 8.
Diſtantia Solis à Nonageſimo ad Ortum		4 7 42.
Parallaxis Longitudinis Lunæ à Sole		2 31.
Parallaxis Latitudinis in Auſtrum.		48 6.
Latitudo Lunæ vera	Sept. Deſc.	34 49.
Quâ ablatâ ex Parallaxi latitudinis, erit latitudo viſa, Mer.		13 17.
Semidiameter Solis		16 19.
Semidiameter Lunæ		16 40.
Summa Semidiametrorum		32 59.
Demptâ latitudine viſâ, erit Pars deficiens		19 42.

Pro Digitis Eclipticis.

		Log. Logiſt.	
Pars deficiens	19′ 42″.	951631.	
Diameter Solis dupla	gr. 1 5 16.	1003654.	Subtr.
Digiti Ecliptici	7 14 38.	947977.	

Pro Scrupulis Incidentiæ inveniendis:

Ut Coſinus viſæ latitudinis Lunæ, ad Radium; ita Coſinus Summæ Semidiametrorum Solis & Lunæ, ad Coſinum Scrupulorum Incidentiæ. Vel perfici poteſt ad modum 31. Præcepti.

Alitèr.

A *Logarithmo Logiſtico* latitudinis ☽ à ☉ viſæ auferatur Logarithmus Logiſticus aggregati Semidiametrorum Solis & Lunæ, & relinquitur Sinus cujuſdam arci, cujus Coſinus ſi addatur *Logarithmo Logiſtico* Semidiametrorum Solis & Lunæ, Summa erit *Logarithmus Logiſticus* Scrupulorum Incidentiæ.

Exem-

Exemplum.

Latitudo Lunæ à Sole viſa	13′ 17″	L L.	9, 34515.
Summa Semidiametrorum ☉ & ☽	32 59.	L L.	9, 74014.
		S.	9, 60501.
		cs.	9, 96157.
Summa Semidiametrorum	32′ 59″.	L L.	9. 74014.
Scrupula Incidentiæ	30 11.	L L.	9, 70171.

Inquirantur Parallaxes ad horam 1. *antecedentem* ☌ *viſam, videl.*	Ho. 20 37′ 3″.
Quo tempore dabitur Aſcenſio Recta Medii Cœli	318 37.
Medium Cœli in Eclipticâ	16 8. ♒
Angulus Meridianus	72 34.
Altitudo Medii Cœli	22 25.
Eſt ergò in gradu Eclipticæ Nonageſimo	♓ 22 7 21.
Altitudo Nonageſimi, ſeu angulus Eclipticæ & Horizontis	28 7 10.
Diſtantia Solis à Nonageſimo	18 3 49.
Parallaxis Longitudinis	8 291
Parallaxis Latitudinis	51 14.
Differentia Parallaxeos longitudinis horâ datâ	6 8.
Quæ ablata à Motu horario ☽ à ☉ vero, relinquit viſum	28 55.
Ad hor. 1. *ſeq.* ☌ *viſam inquirantur Parallaxes, videl. ad Hor.*	22 37 3.
Quo tempore erit Aſcenſio Recta Medii Cœli	348 42.
Medium Cœli	17 42. ♓
Angulus Meridianus	66 56.
Altitudo Medii Cœli	33 35.
Eſt ergò in Nonageſimo	♈ 18 14 38.
Altitudo Nonageſimi	39 57 40.
Diſtantia Solis à Nonageſimo ad Occaſum	7 58 32.
Parallaxis longitudinis	5 11.
Differentia Parallaxeos Longitudinis Horâ datâ	7 32.
Quæ ablata à motu horario ☽ à ☉ vero, exhibet viſum	27 31.
Parallaxis Latitudinis	44 32.
Scrupula Incidentiæ præinventa	30 11:
Quæ diviſa per horar. 28′ 55″, dant tempus Incidentiæ, Ho.	1 2 37.
Diviſa etiam per hor. 27′ 31″, exhibent tempus Repletionis Ho.	1 5 50.
Et totam durationem Hor.	2 8′ 27″.
Latitudo viſa 13′ 17″. Merid. Aſcend. dat intervallum 1′ 8″, quod diviſum per horarium viſum ante ☌ viſum exhibet temporis intervallum	Ho. 0 2′ 21″.
Accidit ergò Medium Eclipſis, ſeu maxima Obſcuratio, Ho.	9 34 42.

Unde colligitur,

	Ho. ′ ″.	
Initium Eclipſis Londini	8 32 5.	Ante Meridiem.
Medium	9 34 42.	
Viſa Luminarium ☌	9 37 3.	
Finis	10 40 32.	

Typus

Typus Eclipſis Solis.

Septentrio.



Meridies.

Ex prædictis patet, quòd quando eſt Eclipſis Lunæ, eſt Obſcuratio luminis Lunaris in omnibus Terræ locis, ſed quando eſt Eclipſis Solis, nequaquam: Nam in uno Climate eſt Obſcuratio Solis, & in alio non, quod contingit propter diverſitatem Lunæ Parallaxeos in diverſis Climatibus. Unde Virgilius,

Defectus Lunæ varios, Soliſq; labores.

Præceptum XXXVII.

De Calculo appulſuum Lunæ ad Planetas, ſeu ad Stellas fixas.

Appulſus Lunæ ad Planetas, ſeu ad Stellas fixas vix differt à Computo Eclipſeos Solaris, niſi quòd Calculus ſit Calculo illarum expeditior; perinſignis autem eſt horum uſus, præcipuè in perquirendis veris Lunæ locis, tùm in Longitudine tum in Latitudine. Modus verò Calculi in antecedentibus Præceptis ſatis demonſtratus eſt, ſufficiet itaq; hoc unum Exemplum ſubjungere. De Appulſu Lunæ ad Stellas errantes & inerrantes.

Anno Chriſti 1625. die 30 *Januarii*, horâ 6 47′. veſpertinâ, (vel Hora dimidia citius juxta *Keplerum* in *Tab. Rudolph.* fol. 94.) *Erbachii*, *Ulmæ*, *Tubingæ*, & paſſim in *Sueviâ*, conſpecta eſt *Venus*, quaſi in complexu eſſe Lunæ corniculatæ, ſeu ut alii, quaſi hærere in Auſtrino Lunæ cornu. Idem quoq; φαινόμενον animadverſum eſt *Lugduni Batavorum* à D. *Martino Hortenſio*.

Tempus medium erat *Erbachii*, Hor. 6 27′, *Londini* verò Hor. 5 17′, quo tempore verus locus Solis erat in gr. 21. 24′ 28″ ♒, & Log. 99445.

Motus Lunæ & Veneris, ex antecedentibus Præceptis ita colliguntur.

Lunæ.	S. gr. ′ ″.	*Veneris.*	S. gr. ′ ″.
Medius motus Lunæ	11 20 14 30	Medius motus Veneris	1 13 46 8
Apogæum	4 9 34 31	Aphelium	9 29 35 35
Anomalia media	7 10 39 59	Anomalia media	3 14 10 33
Proſthaphæreſis Ad.	3 18 25	Proſthaphæreſis Sub.	48 53
Anomalia æquata	7 7 21 34	Locus Heliocentricus	1 12 57 15
Locus Lunæ æquatus	11 23 32 55	Nodus Boreus	2 13 33 34
Locus Solis verus	10 21 24 28	Argumentum Latitud.	10 29 23 41
Diſtantia ☽ à ☉	1 2 8 27	Reductio Add.	2 37
Duplicata diſtantia	2 4 16 54	Locus Heliocent. Reduct.	1 12 59 52
Reflectio Add.	36 29	Locus verus Solis	10 21 24 28
Anomalia exarata	7 7 58 3	Anomalia Orbis	2 21 35 24
Æquatio 2ª. Add.	1 57 28	Parallaxis Orbis Add.	1 3 11 34
Locus ☽ in Orbitâ	11 25 30 23	Locus ♀ Geocentricus	11 24 36 2
Nodus Boreus	5 24 18 21	Latitudo Maxima	1 52 30
Anomalia latit. ☽	6 1 12 2	Latitudo vera Auſtr.	57 15
Reductio Sub.	0 18		
Locus Lunæ verus	11 25 30 5		
Latitudo vera M. A.	0 6 50		

Ad tempus apparens Hor. 6 17. Erbachii, datur,

Aſcenſio Recta Solis	gr. 323 48′.
Aſcenſio Recta Medii Cœli	58 3.
Medium Cœli in Ecliptica	0 14 ♊.
Declinatio M. C. Borea	20 16.
Altitudo Æquatoris Erbachii	41 30.
Altitudo M. C.	61 46.

His ita datis, inquirantur Parallaxes Lunæ, juxta modum præcedentis Præcepti.

1. *De inveſtigandâ Nonageſimi altitudine.*

Angulus Meridianus	gr. 77 47′.	S.	9, 99005.	} Add.
Altitudo Medii Cœli	gr. 61 46.	cs.	9. 67492	
Altitudo Nonageſimi	gr. 62 27 40″.	cs.	9, 66497.	

2. *De M. C. à Nonageſimo, Diſtantiâ computandâ.*

Vix differt hic alculus à Calulo Eclipſeos olaris.

Angulus Meridianus	gr. 77 47′.	cs.	9, 32553.
Altitudo M. C.	gr. 61 46.	ct.	9, 72993.
Diſtantia M. C. à Nonageſimo	gr. 6 28 57″.	t.	9, 05546.

S ° ′ ″.	
2 0 14 0.	Medium Cœli
6 28 57.	Diſtantia M. C. à Nonageſimo Add.
2 6 42 57.	Gradus Eclipticæ Nonageſimus
5 24 18 21.	Nodus ☽ Boreus
8 12 24 36.	Anomalia Latitudinis Orbitæ ☽ in Nonageſimo.
4 45 55.	Ergò dabitur Latitudo Orbitæ Lunæ vera Auſtrina.
57 41 45.	Et Altitudo Nonageſimi in Orbita Lunæ.
71 12 34.	Diſtantia Lunæ à Nonageſimo ad occaſum.

3. *De inveſtigatione Parallaxeos Longitudinis Lunæ.*

Horizontalis Parallaxis Lunæ	60′ 5″.	LL.	10. 00060.	} Add.
Altitudo 90ᵐⁱ in Orbitâ Lunæ	gr. 57 41 45.	S.	9, 92697.	
Diſtantia ☽ à Nonageſimo	gr. 71 12 34.	S.	9. 97621.	
Parallaxis Longitudinis ☽	48 5″.	LL.	9, 90378.	

4. *De*

4. De inveſtigatione Parallaxeως latitudinis Lunæ.

Horizontalis Parallaxis Lunæ	60′ 5″.	L L.	10, 00060.	Add.
Altitudo 90^mi in Orbitâ ☽	gr. 57 41 45.	cs.	9. 72788.	
Parallaxis latitudinis Lunæ	32 6.	L L.	9, 72848.	

Verus locus Lunæ erat in gr. 25 30′ 5″ ♓, cum latitudine auſtrinâ 6′ 50″. Ergò centrum Lunæ apparebat in gr. 24 42′ 0″ ♓, cum latitudine auſtrinâ 38′ 56″. Semidiameter autem Lunæ erat 16′ 35″, fuit itaq; latitudo cornu auſtrini Lunæ 55′ 31″. Erat igitur differentia Longitudinum marginis auſtralis Lunæ & Veneris 5′ 58″, & differentia latitudinum 1′ 44″. Semidiameter etiam ♀ erat 1′ 30″. Diſtabat ergo Venus à cornu Lunæ auſtrino Scrup. 4. Quòd igitur viſa eſt Venus ipſum Lunæ cornu ſtringere, id fuit ab explicatione radiorum Lunæ in oculis obſervatorum.

Septentrio.

Schema hujus Apparitionis.



Luna.

Stella Veneris ingens Cornu ☽^is auſtrinum.

Aliter.

Parallaxes Lunæ accuratiùs inveniantur per doctrinam in Lib. 3. Cap. 3. Probl. 10. traditam; uti in hoc Exemplo, ubi dantur.

		Gr. ′ ″.			
Diſtantia ☽ à vertice		73 30 34.			
Complementum Altitudinis 90^mi in Orbitâ ☽		32 18 15.			
Diſtantia Lunæ à Nonageſimo		71 12 34.			
Ergò	*Semiſumma Baſium erit*	36 45 17.	t.	9, 87324.	Per Probl. 11.
	Semiſumma Laterum	51 45 24.	t.	10, 10340.	Triang. Sphæ.
	Semidifferentia Laterum	19 27 10.	t.	9, 54801.	Obliquang.
				19, 65141.	
	Semidifferentia Baſium	30 57 54.		9, 77817.	
Semiſumma Baſium		36 45 17.			
Segmentum majus		67 43 11. Summa.			
Segmentum minus		5 47 23. Differentia.			

Diſtantia Lunæ à Nonageſimo	gr.	71 12 34.	t.	10, 46821
Radius		90.		10, 00000.
Segmentum majus		67 43 11.	t.	10, 38750.
Angulus Parallacticus		33 51 34.	cs.	9, 91929.

De Parallaxi Longitudinis ☽ inveniendâ.

Per Præcept. 26.	*Parallaxis Altitudinis Lunæ*		57′ 55″.	t.	8, 22657.
	Angulus Parallacticus	gr.	33 51 34.	cs.	9, 91929.
	Parallaxis Longitudinis ☽		48 6.	t.	8, 14586.

De Parallaxi Latitudinis inveſtigandâ.

Per Præcept. 26.	*Parallaxis Altitudinis* ☽	57′ 55″.	s.	8, 22651.
	Angulus Parallacticus	gr. 33 51 34.	s.	9. 74598.
	Parallaxis Latitudinis ☽	32 16.	s.	7, 97249.

Præceptum XXXVIII.

Locum Stellarum fixarum ad aliquod tempus datum reperire.

PRimùm collige Receſſionem Æquinoctiorum tempore dato (quæ æqualis eſt diſtantiæ primæ Arietis Stellæ à verno Æquinoctio) cui ſi addas diſtantiam Stellæ cujus longitudo quæritur, aggregatum erit locus Stellæ quæſitus.

Exemplum. Scire vellm locum Cordis Leonis die 1. *Januarii*, 1665. & ad hunc finem, colligo Receſſionem Æquinoctiorum, per Canonem vulgarem hoc modo.

Anni	Motus primæ ✶ Arietis.	
	S. gr. ′ ″.	
1661	♈ 28 27 11.	Add.
4	3 22.	
1665	♈ 28 30 33.	

Receſſio Æquinoctii verni à primâ Stellâ Arietis. Diſtat autem Prima ♈ à Corde Leonis, Sig. 3. 26′ 40″, addo igitur hanc diſtantiam ad locum primæ Arietis, & aggregatum eſt Longitudo Cordis ♌ tempore dato, gr. 25 10′ 33″ ♌.

Finis Præceptorum.

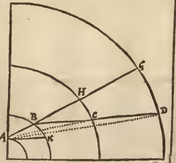
Δόξα Θεῷ.

De Refractione *POSTSCRIPTUM* Roberti Markham *Baronetti.*

NOnnulla hæc de *Refractione* hâcce præſertim de cauſâ ſubjungi, quòd poſtquam prœlum liber ingreſſus eſt, *Author Noſter* propoſitum ſuum de quibuſdam mutandis (ſi vita ſufficeret) circa Refractionem mihi præcipue notum fecit (de quâ re etiam monuit Bibliopolam) unde plurimum intelligebam quid ille in hac re præſtare inſtituerat: Eo verò morte prærepto, fatoq; inſtitutum ſuum intercidente, ob amorem iſtum quo memoriam amici mei defuncti recolo (certe quem vivum me plurimum dilexiſſe, & in ſtudiis meis Aſtronomicis non parum promoviſſe ſenſi) pauca hæc de *Refractione* in quantum potui ad mentem Authoris ſupplendam me jure devinctum ſubjiecere duxi. Sed prinſquam ad rem ipſam tranſeo, annotandum eſt *Authorem Noſtrum* in hoc opere, quantum ad *Refractionem* attinet, ſequutum eſſe *Tychonem* (ut videri eſt pag. 100. lib. 2. cujus Tabulas etiam inſeruit pag. *96.* lib. 5.) non tam propter ſuam hujus Philoſophi in hâc re receptam opinionem, quàm propter communem ſuarum Tabularum apud Aſtronomos uſum; in quibus tabulis *Refractiones Solares* ab horizonte uſq; ad quintum gradum altitudinis ſuperare *Lunares* inveniuntur, à quinto vero gradu uſq; ad 43. *Lunares* ſuperare *Solares*, at poſteà *Solares* iterum ſuperare *Lunares*; quas ut dicam Contradictiones, ſeu falſas obſervationes (ut *Keplerus* de iis opinatus) ad melius obtegendas, Multi Aſtronomorum (ut puto) quos aliter non excuſare poſſum, deduxêrunt & defendêrunt; quòd diverſæ Syderum è centro Terræ elongationes diverſas non faciunt Refractiones; Authore verò noſtro (in quibuſdam diſſertationibus cum quodam viro Mathematico noviùer habitis) aſſerente contrarii veritatem, nempe, *Quod inter duorum Syderum eandem veram altitudinem habentium Refractiones, illa major eſt quæ eſt ſyderis minus è centro Terræ diſtantis. Ricciol. pag. 46. lib. 1. par. 1. Tom. 1.* ita evenit ut quidam Bomolochus (dum hoc opus ſub prœlo latebat) publice de A. *N.* in hâc parte detrectare conatus eſt; ab hâc igitur factâ occaſione A. N. denuò decrevit potius propoſitionem ſuam demonſtrare, quàm *Tychonem* diutius ſequi. Oportet me igitur qui Authoris vice hujus aſſertionis veritatem explicare ſuſceperim, primò recitare principia quædam ex doctrinâ Refractionis, quibus veritatem propoſitionis noſtræ demonſtrare conabor, quæ ſunt hujuſmodi.

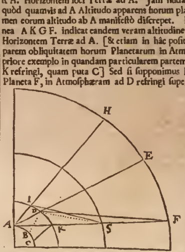
Imprimis, Quod omnes Radii Corporum Cæleſtium obliquè in Atmoſpheram incidentes, non projiciuntur per eam in linea recta, ſed (per quandam contractionem verſus Atmoſphæræ centrum) in perpendiculum refringuntur.

Secundo, Quanto majore obliquitate quorumvis Syderum Radii in Atſmopheram incidunt, tanto majorem patiuntur refractionem.



Ex hiſee præceptis, (ne plura addam) præfati problematis demonſtrationem aggredior; primo igitur in appoſito Schemate ſit A Terra, B Atmoſphæra, C Luna, & D Planeta Mars, (patet etiam Martem multo longius diſtare à Terra quâm Lunam) qui duo planetæ pari inter ſe obliquitate cadunt in Atmoſphæram ad B, ideoq; à B in aliquam partem Terræ æqualiter debent refringi, puta A. unde hi duo planetæ ejuſdem ſunt altitudinis apparentis ab A. ſci-

licet in linea recta A B G H. jam proxime ſi ab A. ducamus lineas punctatas, A C & A D erunt lineæ verarum altitudinum horum planetarum ſuper K A. Horizontem loci Terræ ad A. Jam nuda inſpectione ſatis evidens eſt, quòd quamvis ad A Altitudo apparens horum planetarum ſit eadem, vera tamen eorum altitudo ab A manifeſtò diſcrepet. In ſequente Diagrammate linea A K G F. indicat eandem veram altitudinem Planetarum G & F, ſuper Horizontem Terræ ad A. [& etiam in hâc poſitione punctum K repræſentat parem obliquitatem horum Planetarum in Atmoſphæram ad K igitur ut in priore exemplo in quandam particularem partem Terræ æqualiter debent à K refringi, quam puta C] Sed ſi ſupponimus Radios Incidentiæ cadentes à Planeta F, in Atmoſphæram ad D refringi ſuper Terram ad A, tum Radii



Incidentiæ cadentes à Planeta G. in Atmoſphæram ad D. nequaquam refracti erunt in Terram ad A. Sed quoniam angulus obliquæ incidentiæ Planetæ G. in Atmoſphæram ad D. [viz. ang. G D K] eſt obliquior angulo incidentiæ Planetæ F in Atmoſphæram ad D [viz. ang. F D K] idcirco Radii cadentes à G in D. majore obliquitate refringuntur verſus B. Unde neceſſariò ſequitur ut Radii Planetæ G. qui cadunt in Terram ad A. altiùs in Atmoſphæram ſurgant quam punctum D. viz. verſus I. unde altitudo apparens Planetæ G, major erit, viz. ad H. quam altitudo apparens Planetæ F, quæ erit ad E. Ex hiſce duabus demonſtrationibus, abunde ſatis eluceſcit, primò, *Quod quando duo pluréſve Planetæ, diverſæ à Terrâ diſtantiæ, eandem habent apparentem altitudinem, tum veræ eorum altitudines differunt.* Poſtremò. *Quando veræ eorum altitudines conveniunt, tum fit per Refractionem ut altitudines apparentes, ita diſcrepant, ut viciniores magis refringuntur*, quod erat probandum. Jam quoniam plenum in hâc cauſâ conſenſum reperio, inter A. N. & *Doctiſſimum Ricciolum*, ad cujus tabulas Refractionis [in pleniorem A. N. ſententiæ confirmationem] lectorem refero, in fine. Par. 2. Tom. 1. Sed ſi A. N vitâ diutiùs frueretur, ampliſſimam hâc in parte ſatisfactionem Orbi literario daturus erat; ſed quoniam ipſum re infecta Cœlum abſtulit, ſpero, quamcunq; quoad hanc rem Lector Candidus amplectatur ſententiam, de me tamen amanter cenſurus ſit, & de Mortuo nil niſi bonum.

Vale.

R.º M.

FINIS.

TABULA LOGARITHMORUM LOGISTICORUM.

Motus II	T	0′ H. 0 0	1′ 0 24	2′ 0 48	3′ 1 12	4′ 1 36	5′ 2 0	6′ 2 24	7′ 2 48
0	0	0	822185	852208	869897	882391	892082	900000	906695
1		644370	822903	852648	870127	882571	891222	500120	906798
2		674473	823609	852006	870377	882751	892370	900240	906901
3		692082	824304	853360	870515	882931	892514	900360	907004
4		704576	824988	853712	870851	883109	892657	900480	907106
5	2	714267	825661	854061	871087	883286	892800	900599	907208
6		722185	826324	854407	871321	883463	892942	900718	907312
7		728879	826977	854750	871554	883639	893083	900836	907413
8		734679	827620	855091	871785	883815	893225	900954	907514
9		739794	828255	855429	872016	883980	893365	901072	907615
10	4	744370	828879	855764	872244	884174	893506	901190	907716
11		748509	829495	856097	872473	884337	893645	901307	907817
12		752288	830103	856427	872700	884510	893785	901414	907918
13		755764	830702	856755	872925	884682	893924	901540	908018
14		758982	831292	857080	873150	884853	894063	901657	908119
15	6	761979	831876	857403	873373	885024	894201	901773	908219
16		764782	832451	857723	873595	885194	894338	901887	908318
17		767414	833019	858042	873816	885363	894476	902004	908418
18		769897	833579	858358	874036	885532	894612	902119	908517
19		772245	834132	858671	874254	885700	894749	902234	908616
20	8	774473	834679	858982	874473	885867	894885	902348	908715
21		776592	835218	859092	874689	886034	895020	902462	908813
22		778612	835751	859598	874905	886200	895155	902576	908912
23		780542	836277	859903	875119	886365	895290	902689	909011
24		782391	836798	860106	875333	886530	895424	902803	909108
25	10	784164	837311	860506	875545	886694	895558	902916	909206
26		785867	837819	860805	875756	886858	895691	903028	909303
27		787586	838422	861101	875967	887022	895824	903141	909400
28		789085	838819	861396	876176	887183	895957	903253	909497
29		790609	839309	861688	876384	887345	896089	903365	909594
30	12	792082	839794	861979	876592	887506	896221	903476	909691
31		793506	840274	861267	876798	887667	896352	903587	909787
32		794885	840748	862554	877003	887827	896483	903698	909883
33		796221	841218	862839	877208	887986	896614	903809	909979
34		797517	841682	863122	877411	888145	896744	903919	910075
35	14	798776	841142	863403	877612	888303	896874	904029	910171
36		800000	842597	863682	877815	888461	897004	904139	910267
37		801190	843047	863960	878016	888618	897133	904249	910361
38		802348	843492	864235	878215	888774	897261	904358	910456
39		803476	843933	864509	878414	888930	897390	904467	910551
40	16	804576	844370	864782	878612	889085	897517	504576	910645
41		805648	844802	865052	878809	889240	897645	904684	910740
42		806695	845230	865321	879004	889395	897772	904792	910834
43		807716	845653	865588	879200	889548	897899	904900	910928
44		808715	846073	865854	879394	889701	898025	905008	911021
45	18	809691	846488	866118	879588	889854	898152	905115	911115
46		810645	846900	866380	879780	890006	898277	905222	911208
47		811579	847308	866641	879972	890158	898403	905329	911301
48		812494	847712	866901	880162	890308	898528	905436	911394
49		813389	848112	867158	880153	890459	898652	905542	911487
50	20	814267	848509	867415	880542	890609	898776	905648	911579
51		815127	848902	867669	880731	890759	898900	905754	911672
52		815970	849191	867912	880918	890708	899024	905859	911764
53		816797	849677	868174	881105	891056	899147	905965	911856
54		817609	850060	868425	881290	891204	899270	906070	911947
55	22	818406	850439	868673	881476	891352	899391	406174	912139
56		819188	850815	868921	881661	891499	899515	906274	912130
57		819957	851188	869167	881844	891644	899636	906383	912221
58		820712	851558	869412	882027	891791	899758	906487	912312
59		821455	851924	869655	882209	891937	800879	906501	912403
60	24	822185	852288	869897	882391	892082	900000	906695	912494

TABULA LOGARITHMORUM LOGISTICORUM.

Motus		8′	9′	10′	11′	12′	13′	14′	15′
22	T	H. 3 11	3 36	4 0	4 24	4 48	5 22	5 36	6 0
0	0	912494	917609	922185	926324	930103	933579	936798	939794
1		912584	917689	922257	926390	930163	933635	936849	939842
2		912674	917770	912329	926455	930223	933690	936901	939890
3		912764	917850	922401	926521	930283	933746	936952	939938
4		912854	917929	922473	926586	930343	933801	937004	939986
5	2	912944	918009	922545	926652	930403	933857	937055	940034
6		913033	918089	921617	926717	930463	933912	937107	940082
7		913222	918168	922688	926782	930523	933967	937158	940130
8		913212	918148	912760	926847	930583	934022	937109	940178
9		913300	918327	912831	926912	930642	934077	937260	940226
10	4	913389	918406	922903	926977	930702	934132	937311	940274
11		913478	918485	922974	917042	930761	934187	937363	940321
12		913566	918564	923045	927107	930821	934142	937414	940369
13		913654	918642	913116	917171	930880	934197	937465	940417
14		913742	918721	923186	917226	930939	934351	937515	940464
15	6	913830	918799	923257	927300	930998	934406	937566	940512
16		923918	918877	923328	927364	931057	934461	937617	940559
17		914005	918955	923398	927428	931116	934516	937678	940607
18		914093	919033	923468	927493	931175	934570	937718	940654
19		914180	919111	913539	927557	931234	934624	937769	940701
20	8	914267	919188	923609	927620	931192	934679	937819	940748
21		914353	919266	913679	927684	931351	934733	937879	940796
22		914440	919343	923749	917748	931410	934787	937910	940843
23		914526	919410	923818	917812	931478	934841	937971	940890
24		914613	919498	923888	927875	931527	934895	938021	940937
25	20	914699	919574	923956	927919	931585	934949	938071	940984
26		914785	919651	924027	928002	931643	935003	938121	941031
27		914870	919728	924096	928065	931702	935057	938172	941078
28		914956	919794	924166	918118	931760	935111	938222	941224
29		915041	919881	924135	928192	931818	935164	938272	941171
30	12	915127	919957	924304	928255	931876	935218	938322	942218
31		915212	920033	924373	918317	931931	935172	938372	941265
32		915297	920109	924441	918380	931991	935325	938421	941311
33		915381	920185	924510	918443	932049	935378	938471	941358
34		915466	920261	924579	928506	932107	935432	938521	941404
35	14	915550	910336	924647	928568	932164	935485	938570	941451
36		915635	920413	924715	918631	932222	935539	938620	941497
37		915719	920487	924784	928692	932279	935592	938670	941544
38		915803	920562	924852	928755	931337	935645	938719	941590
39		915886	920637	924920	928817	932394	935698	938768	941636
40	16	915970	910712	924988	918879	932451	935751	938818	941682
41		916053	920787	925055	928941	932508	935804	938867	941729
42		916137	920873	925123	929003	932565	935857	938916	941775
43		916220	910936	925191	929065	932622	935910	938966	941821
44		916303	921011	925258	919127	932679	935962	939015	941867
45	18	916386	921085	925326	929189	931736	936015	939064	941913
46		916468	921179	925393	929250	932792	936068	939113	941959
47		916551	921233	925460	919312	932849	936120	939162	942005
48		916633	921307	915527	929373	932906	936173	939211	942050
49		916715	921381	925594	919434	932962	936225	939260	941096
50	20	916797	921455	925661	919495	933019	936277	939309	942142
51		916879	921527	925728	929557	933075	936330	939357	942188
52		916961	921603	925794	929618	933131	936382	939406	942233
53		917042	911675	925861	919679	933188	936434	939455	942279
54		917124	921748	925927	929739	933244	936486	939503	942324
55	22	917205	921821	925994	929800	933300	936538	939552	942370
56		917186	921894	926060	929861	933356	936590	939600	942415
57		917367	921967	916126	929922	933412	936642	939649	942461
58		917448	922040	926192	929982	933468	936694	939697	942506
59		917518	922112	916158	930042	933523	936746	939746	941550
60	24	917609	922185	926324	930103	933579	936798	939794	942597

TABULA LOGARITHMORUM LOGISTICORUM.

Motus		16′	17′	18′	19′	20′	21′	22′
II	I	H. 6 24	6 48	7 12	7 36	8 0	8 24	8 48
0	0	942597	945230	947712	950060	952288	954407	956427
1		942642	945272	947752	950098	952324	954441	956460
2		942687	945315	947792	950136	952360	954476	956493
3		942731	945357	947832	950174	952396	954510	956526
4		942777	945399	947873	950212	952432	954544	956558
5	2	942822	945442	947913	950250	952468	954579	956591
6		942867	945484	947953	950288	952504	954613	956624
7		942912	945527	947593	950326	952540	954647	956657
8		942957	945569	948033	950364	952576	954682	956689
9		943002	945611	948072	950401	952612	954716	956722
10	4	943047	945653	948112	950439	952648	954750	956755
11		943091	945695	948152	950478	952684	954784	956787
12		943136	945737	948192	950515	952720	954818	956820
13		943181	945790	948232	950553	952756	954852	956853
14		943225	945822	948271	950592	952791	954887	956885
15	6	943270	945864	948311	950628	952817	954921	956918
16		943314	945906	948351	950665	952863	954955	956950
17		943359	945947	948390	950703	952899	954989	956983
18		943403	945989	948430	950740	952934	955023	957015
19		943448	946031	948469	950778	952970	955057	957048
20	8	943492	946073	948509	950815	953006	955091	957080
21		943536	946115	948548	950853	953041	955125	957112
22		943581	946156	948588	950890	953077	955158	957145
23		943625	946198	948617	950928	952112	955192	957177
24		943669	946240	948667	950965	953148	955226	957210
25	10	943713	946281	948706	951002	953183	955260	957242
26		943757	946323	948745	951039	953219	955294	957274
27		943801	946364	948784	951076	953254	955327	957309
28		943845	946406	948824	951114	953289	955361	957339
29		943889	946447	948863	951151	953325	955395	957371
30	12	943933	946488	948902	951188	953360	955429	957403
31		943977	946530	948941	951225	953395	955462	957435
32		944021	946571	948980	951262	953431	955496	957457
33		944064	946612	949019	951299	953466	955519	957499
34		944108	946654	949058	951336	953501	955563	957531
35	14	944152	946695	949097	951373	953536	955597	957563
36		944195	946736	949136	951410	953571	955630	957595
37		944239	946777	949175	951447	953607	955664	957628
38		944283	946818	949214	951494	953642	955697	957660
39		944326	946859	949253	951521	953677	955731	957612
40	16	944370	946899	949291	951558	953712	955764	957723
41		944413	946941	949330	951594	953747	955797	957755
42		944456	946982	949369	951631	953782	955831	957 87
43		944500	947023	949408	951668	953817	955864	957819
44		944543	947064	949446	951705	953852	955897	957851
45	18	944586	947105	949485	951741	953887	955931	957883
46		944629	947145	949523	951778	953922	955964	957915
47		944673	947186	949562	951815	953956	955997	957946
48		944716	947227	949601	951851	953991	956030	957978
49		944759	947267	949639	951888	954 26	956064	958010
50	20	944802	947308	949677	951924	954061	956097	958042
51		944845	947349	949716	951961	954095	956130	958073
52		944888	947389	949754	951997	954130	956163	958105
53		944930	947430	949793	952034	954165	956196	958137
54		944973	947470	949831	952070	954199	956229	958168
55	22	945016	947 11	949869	952106	954234	956262	958200
56		945059	947551	949907	952143	954269	956295	958231
57		945102	947591	949946	952179	954303	956328	958263
58		945145	947631	949984	952215	954338	956361	958295
59		945187	947672	950022	952252	954372	956394	958326
60	24	945230	947712	950060	952288	954407	956427	958358

TABULA LOGARITHMORUM LOGISTICORUM.

Motus		23′	24′	25′	26′	27′	28′	29′	30′
♏	T	H 9 12	9 36	10 0	10 24	10 48	11 12	11 36	12 0
0	0	958358	960206	961979	963682	965321	966901	968425	969897
1		958389	960236	962008	963710	965348	966926	968449	969921
2		958410	960266	962037	963738	965375	966952	968474	969945
3		958452	960296	962065	963765	965401	966978	968499	969969
4		958483	960326	962094	963793	965428	967004	968524	969993
5	2	958515	960356	962123	963821	965455	967030	968549	970017
6		958546	960386	962152	963849	965482	967055	968 74	970041
7		958577	960416	962181	963875	965508	967081	968595	970065
8		958609	960446	962120	963904	965535	967107	968624	970089
9		958640	960476	962239	963932	965562	967133	968649	970113
10	4	958671	960506	952267	963960	965588	967158	968673	970137
11		958702	960536	962196	963987	965615	967184	968698	970161
12		958734	960566	962325	964015	965642	967220	968723	970185
13		958765	960596	962353	964042	965668	957235	968748	970209
14		958796	960626	962382	964070	965695	967261	968773	970233
15	6	958827	960656	962411	964098	965721	967287	968797	970257
16		951858	960686	962440	964125	965748	967312	968822	970281
17		958889	960716	9624 8	964153	965774	967338	968847	970305
18		958920	960745	962497	964180	965801	967363	968871	970329
19		958951	960775	962525	9 4208	965827	967389	968895	970353
20	8	958982	960805	962654	964235	965854	967414	968921	970377
21		959013	960835	962583	964 63	965880	967440	968945	970401
22		959044	960864	962611	964290	965907	967466	968970	970424
23		959075	960894	961640	964318	965933	967491	968995	970448
24		959106	960924	961668	964345	965900	967517	969019	970472
25	10	959137	960953	961697	964373	965986	967542	969044	970496
26		959168	960982	962725	964400	965013	967568	969069	970520
27		959199	961011	962754	964427	966039	967593	969093	970543
28		959230	961042	962782	964455	966065	967618	969118	970567
29		959161	961072	962810	964482	966092	967644	969142	970591
30	12	959292	961101	962839	964509	965118	967669	969167	970615
31		959322	961131	962867	964537	966144	967695	969191	970638
32		959353	961160	962895	964564	966171	907720	969216	970662
33		959384	961190	962925	964591	966197	967745	969240	970686
34		959415	961219	962952	964618	966223	967771	969265	970710
35	14	959445	961249	962980	964646	966249	967796	969289	970733
36		959476	961278	963009	964673	966275	967821	969314	970757
37		959507	961308	963037	964700	966301	967847	969338	970781
38		959537	961337	963065	964727	966328	967872	969363	970804
39		959568	961366	963093	964752	966354	967897	969387	970828
40	16	959598	961396	963122	964784	966380	967922	969412	970851
41		959629	961425	963150	964809	966407	967948	969436	970875
42		959660	961454	963178	964836	966433	967973	969460	970899
43		959690	961484	963206	964863	965459	967998	969485	970922
44		959721	961513	963234	964890	966485	968023	969509	970946
45	18	959751	961541	963262	964917	966511	968049	969533	970969
46		959782	961571	963291	964944	966537	968074	969558	970993
47		959812	961601	963319	964971	966563	968 99	969582	971017
48		959842	961630	963347	964998	966589	968124	969600	971040
49		959873	961659	963375	965025	966615	968149	969631	971063
50	20	959903	961683	963403	965052	966641	968174	969655	971087
51		959934	961717	963431	965079	966667	968199	969679	971110
52		959964	961746	963459	965106	966693	968224	969703	971134
53		959994	961775	963487	965133	966719	968249	969728	971157
54		960025	961805	963515	965160	966745	968275	969752	971181
55	22	960055	961834	963543	965187	966771	968300	969776	971204
56		960058	961863	963571	965214	966797	968325	969800	971227
57		960115	961892	963598	965241	966813	968350	969824	971251
58		960145	961921	963626	965267	966849	968375	969848	971274
59		960176	961950	963654	965294	966875	968400	969873	971298
60	24	960206	961979	963682	965321	366901	968425	969897	971321

TABULA LOGARITHMORUM LOGISTICORUM.

Motus		31′	32′	33′	34′	35′	36′	37′
11	T	H 12 24	12 48	13 12	13 36	14 0	14 24	14 48
0	0	971321	972700	974030	975333	976591	977815	979005
1		971344	972723	974058	975354	976612	977835	979024
2		971368	972745	974080	975375	976633	977855	979044
3		971391	972768	974102	975396	976654	977875	979064
4		971414	972790	974124	975418	976674	977895	979083
5	2	971437	972813	974146	975439	976695	977915	979103
6		971461	972835	974167	975460	976715	977935	979122
7		971484	972858	974189	975481	976736	977955	979142
8		971507	972880	974211	975503	976757	977975	979161
9		971531	972903	974233	975524	976777	977995	979181
10	4	971554	972925	974255	975545	976798	978015	979200
11		971577	972948	974277	975566	976818	978035	979222
12		971600	972970	974299	975587	976839	978055	979239
13		971623	972993	974320	975608	976860	978075	979258
14		971647	973015	974342	975630	976880	978095	979279
15	6	971670	973038	974364	975651	976901	978115	979297
16		971693	973060	974386	975672	976921	978135	979316
17		971716	973083	974407	975693	976942	978155	979336
18		971739	973105	974429	975714	976962	978175	979356
19		971762	973127	974450	975735	976982	978195	979374
20	8	971785	973150	974473	975756	977003	978215	979394
21		971808	973172	974494	975777	977024	978235	979414
22		971832	973195	974516	975798	977044	978255	979433
23		971855	973217	974538	975820	977065	978275	979453
24		971878	973239	974559	975841	977085	978295	979472
25	10	971901	973262	974581	975862	977105	978315	979491
26		971924	973284	974602	975883	977126	978335	979510
27		971947	973306	974624	975904	977146	978354	979530
28		971970	973328	974646	975925	977167	978374	979549
29		971993	973351	974668	975946	977187	678394	979569
30	12	971016	973373	974689	975967	977208	678414	979588
31		972039	973395	974711	975988	977228	978434	979607
32		972062	973418	974732	976009	977248	978454	979626
33		972085	973440	974754	576030	977269	978473	979646
34		972108	973462	974776	976050	977289	978493	979665
35	14	972131	973484	974797	976071	977309	978513	979684
36		972153	973506	974819	976092	977330	978533	979704
37		972176	973529	974840	976113	977350	978553	979723
38		972199	973551	974862	976134	977370	978572	679742
39		972222	973573	974883	976155	977391	978592	979761
40	16	972145	973595	974905	576176	977411	978612	979780
41		972168	973617	974926	976197	977431	978632	979800
42		972191	973640	974948	976218	977452	978651	579819
43		972313	973662	974969	976239	977472	978671	979838
44		972336	973684	974991	976259	977492	978691	979857
45	18	972359	973706	975012	976280	977512	978710	979876
46		972382	973728	975033	976301	977533	978730	979895
47		972405	973750	975055	976322	977553	978750	9799[illegible]
48		972422	973772	975076	976343	977573	978770	979934
49		972450	973794	975098	976363	977593	978789	979953
50	20	972473	973816	975119	976384	077613	978809	979972
51		972456	973838	975141	976404	977634	978828	979991
52		972518	973860	975162	976426	977654	978848	980010
53		972540	973882	975183	976447	977674	978868	980029
54		972564	973904	975105	976467	977694	978827	980049
55	22	972586	973926	975216	976488	977714	978907	980068
56		972609	973948	975247	976509	977734	978917	980087
57		972632	973970	975269	976529	977755	978946	980106
58		972654	973992	975250	976550	977775	978966	980125
59		972677	974014	975312	976571	977795	978985	980144
60	24	972700	974036	975333	976592	977815	979005	980163

TABULA LOGARITHMORUM LOGISTICORUM.

Motus		38′	39′	40′	41′	42′	43′	44′	45′
″	T	H.1512	15 36	16 0	15 24	16 48	17 12	17 36	28 0
0	0	980163	981291	982391	983463	984510	985532	986530	567506
1		980182	981309	982409	983481	984527	985548	986546	987522
2		980201	981328	982427	983498	984544	985565	986563	987538
3		980120	981347	982445	983516	984561	985582	986579	987554
4		980139	981365	982463	983534	984579	985599	986596	987570
5	2	980258	981384	982481	983551	984586	985616	986612	987586
6		980277	981402	982499	983569	984613	985632	986629	987602
7		980296	981421	982517	983587	984630	985649	986645	987618
8		980315	981439	982535	983604	984647	985666	986661	987634
9		980334	981458	982553	983022	984664	985683	986678	987651
10	4	980353	982476	982571	983639	984682	985700	986694	987667
11		980372	981495	982589	983657	984699	985716	986711	987683
12		980391	981513	982607	983674	984710	985733	986727	987699
13		980410	981532	982625	983692	984733	985750	986743	987715
14		980429	981550	932643	983710	984750	985767	986760	987731
15	6	980448	981569	982661	983727	984767	985783	986776	987747
16		980467	981587	982679	983745	984785	985800	986792	987763
17		980486	981606	981697	983762	984802	985817	986809	987779
18		980505	981624	982715	983780	984819	985834	986825	987795
19		980523	981642	982733	983797	984836	985850	986841	987811
20	8	980542	981661	982751	983815	984853	985867	986858	987826
21		980562	981679	982769	983832	984870	985884	986874	987842
22		980580	981698	982787	983850	984887	985900	986890	987858
23		980599	981716	982805	983867	984904	985917	986907	987874
24		980619	981735	982823	983885	984921	985934	986923	987890
25	10	980637	981753	982841	983902	984938	985950	986919	987906
26		980656	981772	981859	983920	984955	985967	986956	987922
27		980674	981789	982877	983937	984972	985984	986972	987938
28		980693	981808	982873	983955	984990	986000	986988	987954
29		980712	981826	982912	983972	985007	986017	987004	987970
30	12	980732	981844	982930	983990	985024	986034	987021	987986
31		980750	981863	982948	984067	985041	986050	987037	988002
32		980768	981881	982966	984024	985058	986067	987053	988018
33		980787	981899	982984	984043	985075	986084	987069	988034
34		980806	981918	983002	984059	985091	986100	987086	988049
35	14	980825	981936	983019	984077	985109	986117	987102	988055
36		980843	981954	983037	984094	985126	986133	987118	988081
37		980861	981973	983055	984111	985143	986150	987134	988097
38		980881	981991	983073	984129	985160	986167	987151	988113
39		980900	982009	983091	984146	985177	986183	987167	988129
40	16	980918	982027	983109	984164	985194	986200	987183	988245
41		980937	982046	983126	984181	985211	986216	987199	988161
42		980950	982064	983144	984198	985228	986233	987215	988176
43		980975	981082	983161	984216	985244	986249	987232	988192
44		980993	982100	983179	984233	985261	986266	987248	988208
45	18	981012	982118	983197	984250	985278	986283	987264	988224
46		981031	982137	983215	984268	985295	986299	987280	988240
47		981049	982155	983233	984285	985312	986316	987296	988255
48		981068	982173	983251	984302	985329	986332	987313	988271
49		981087	982191	983168	984320	985346	986349	987329	988287
50	20	981105	982209	983286	984337	985363	986365	987345	988303
51		981114	982228	983304	984354	985380	986382	987361	988319
52		981142	982146	983322	984372	985397	986398	987377	988334
53		981161	982264	983336	984389	985414	986415	987393	988350
54		981180	982282	983357	984406	985430	986431	987409	988366
55	22	981198	982300	983375	984423	985447	986448	987425	988382
56		981217	982318	983392	984441	985464	986464	987442	988398
57		981235	982336	983410	984458	985481	986481	987458	988413
58		981254	982355	983418	984475	985498	986497	987474	988429
59		981273	982373	983445	984492	985515	986514	987450	988445
60	24	981291	982391	983463	984510	985532	986530	987506	988461

TABULA LOGARITHMORUM LOGISTICORUM.

Motus		46′	47′	48′	49′	50′	51′	52′
11	T	H. 18 24	18 48	19 12	19 36	20 0	20 24	20 48
0	0	988461	989395	990309	991204	992082	992942	993785
1		988476	989410	990324	991219	992096	992956	993799
2		988492	989425	990339	991234	992111	992970	993813
3		988508	989441	990354	991249	992125	992984	993827
4		988523	989456	990369	991263	992140	992998	993841
5	2	988539	989471	990384	991278	992154	993013	993855
6		988555	989487	990399	991293	992168	993027	993868
7		988571	989502	990414	991308	992183	993041	993882
8		988586	989518	990419	991322	992197	993055	993996
9		988602	989533	990414	991337	992212	993069	993910
10	4	988618	989548	990459	991352	992226	993083	993924
11		988633	989564	990474	991367	992241	993098	993938
12		988649	989579	990489	991381	992255	993112	993952
13		988665	989594	990504	991396	992270	993126	993966
14		988680	989610	990519	991411	992184	993140	993979
15	6	988696	989625	990534	991425	992298	993154	993993
16		988712	989640	990549	991440	992313	993168	994007
17		988727	989656	990564	991455	992327	993182	994021
18		988743	989671	990579	991469	992342	993196	994035
19		988758	989686	990594	991484	992356	993211	994049
20	8	988774	989701	990609	991499	992370	993225	994063
21		988790	989717	990624	991513	992385	993238	994076
22		988805	989732	990639	991528	992399	993253	994090
23		988821	989747	990654	991543	992413	993267	994104
24		988837	989763	990669	991557	992428	993281	994118
25	10	988852	989778	990684	991572	992442	993295	994132
26		988868	989793	990699	991587	992456	993309	994145
27		988883	989808	990714	991601	992471	993323	994150
28		988899	989824	990729	991616	992485	993337	994173
29		988914	989839	990744	991631	992500	993351	994187
30	12	988930	989854	990759	991645	992514	993365	994201
31		988946	989869	990774	991660	992528	993380	994214
32		988961	989885	990789	991674	992543	993394	994228
33		988977	989900	990804	991689	992557	993408	994242
34		988992	989915	990819	991704	992571	993422	994256
35	14	989008	989930	990833	991718	992585	993436	994270
36		989023	989945	990848	991733	992600	993450	994183
37		989039	989962	990863	991747	992614	993464	994297
38		989054	989976	990878	991762	992628	993478	994311
39		989070	989991	990893	991777	992643	993492	994324
40	16	989085	990006	990908	991791	992657	993506	994338
41		989101	990021	990923	991806	992671	993520	994352
42		989116	990037	990938	991820	992686	993534	994366
43		989132	990052	990952	991835	992700	993548	994380
44		989147	990067	990967	991849	992714	993562	994393
45	18	989163	990082	990982	991864	992728	993576	994407
46		989178	990097	990997	991879	992743	993590	994421
47		989194	990112	991012	991893	992757	993604	994434
48		989209	990128	991027	991908	992771	993618	994448
49		989225	990143	991042	991922	992785	993632	994462
50	20	989140	990158	991056	991937	992800	993646	994476
51		989156	990173	991071	991951	991814	993660	994489
52		989171	990188	991086	991966	992828	993674	994503
53		989287	990203	991101	991980	991842	993688	994517
54		989302	990218	991116	991995	992857	993701	994530
55	22	989317	990233	991130	992009	992871	993715	994544
56		989332	990248	991145	992024	992885	993729	994558
57		989348	990264	991160	992038	992899	993743	994571
58		989364	990279	991175	992053	992913	993757	994585
59		989379	990294	991190	992067	992918	993771	994599
60	24	989395	990309	991204	992082	992942	993785	994612

TABULA LOGARITHMORUM LOGISTICORUM.

Motus		53′	54′	55′	56′	57′	58′	59′
22	T	H. 21 22	21 36	22 0	22 24	22 48	23 12	23 36
0	0	994512	995424	996222	997004	997772	998528	999270
1		994526	995437	996234	997026	997785	998540	999282
2		994640	995452	996247	997029	957798	998552	999294
3		994653	925464	996260	997042	997820	998565	999307
4		994667	995478	996274	997055	997823	998577	999319
5	2	994681	995491	996287	997068	997836	998590	999332
6		994694	995504	996300	997081	997848	998602	999343
7		994708	995518	996313	997094	997861	998615	9 9356
8		994721	995531	995326	997107	997874	998627	999368
9		994735	995545	996339	997120	997885	998640	999380
10	4	994749	995558	996352	997132	997899	998652	999392
11		994762	995571	996366	997145	997912	998665	999405
12		994776	995585	996379	997158	997924	998677	999417
13		994789	995598	996392	997171	997937	998689	999429
14		994803	995611	996405	997184	997950	998702	999441
15	6	994817	995625	996418	997197	997962	998714	999454
16		994830	995638	996431	997210	997975	998727	999466
17		994844	995651	996444	997223	997988	998739	999478
18		994857	995665	996457	997236	998000	998752	999490
19		994871	995678	996470	997248	998023	998764	999502
20	8	994885	995691	996483	997261	998025	998776	999515
21		994898	995705	996496	997274	998038	998789	999527
22		994912	995718	996510	997287	998051	998801	999539
23		994925	995731	996523	997300	998063	998814	999551
24		994939	995745	996536	997313	998076	998826	999563
25	10	994952	995758	996549	997325	998089	998838	999576
26		994966	995771	996562	997338	998101	998851	999588
27		994979	995785	996575	997351	998214	998863	999600
28		994993	995798	996588	997364	998126	998876	999622
29		995007	995811	996601	997377	998139	998888	999624
30	12	995020	995814	996614	997390	998152	998900	999636
31		995034	995838	996627	997402	998164	998913	999649
32		995047	995852	996640	997415	998177	998925	999661
33		995061	995864	996653	997428	998189	998937	999673
34		955074	995877	996666	997441	998202	998950	999685
35	14	995088	995891	996679	997454	998224	998962	999697
36		995101	995903	996692	997466	998227	998974	999709
37		995115	995917	596705	997479	998240	998987	999722
38		995128	995930	996718	997492	998252	998999	999734
39		995142	995944	996731	997505	998265	999012	999746
40	16	995155	995957	996744	997517	598277	999024	999758
41		995169	995970	996757	997530	998290	999036	999770
42		995182	995983	996770	997543	998302	999049	999782
43		995196	995997	996783	997556	998325	999061	999794
44		995209	996010	996796	997569	998327	999073	999806
45	18	995123	996013	996809	997581	998340	999086	999819
46		995136	996036	596822	997594	998352	999098	999831
47		995249	996050	996835	997607	998365	999110	999843
48		995163	996063	996848	997610	998378	999122	999855
49		595276	996076	956861	997632	998390	999235	999867
50	20	995290	996089	996874	997645	998403	999147	999879
51		995303	996102	956887	997658	998415	999159	999891
52		995317	996216	996900	997671	998428	999172	999903
53		995330	996 29	996913	997683	998440	999184	999915
54		995344	996142	996926	997696	998453	999196	999927
55	22	995357	996155	996939	997709	998465	999209	999939
56		295370	996168	996952	997721	998478	999121	999951
57		995384	996181	996965	997734	998490	999232	999964
58		995397	996195	996978	947747	998503	999245	999976
59		995411	996208	996952	997760	998515	999258	999988
60	24	995424	996221	997034	997772	998528	999270	100000

Tabula Logarithmorum Logiſticorum.

S.	Log.1°.0′	Log.1°.1′	Log.1°.2′	Log.1°.3′	Log.1°.4′	Log.1°.5′
0	1000000	1000718	1001424	1002119	1002803	1003476
1	1000012	1000730	1001435	1002130	1002814	1003487
2	1[illegible]24	1000741	1001447	1002142	1002825	1003498
3	1000036	1000753	1001459	1002153	1002837	1003509
4	1000048	1000765	1001471	1002165	1002848	1003520
5	1000060	1000777	1001482	1002176	1002859	1003531
6	1000072	1000789	1001494	1002188	1002871	1003543
7	1000084	1000801	1001506	1002199	1002882	1003554
8	1000096	1000813	1001517	1002211	1002893	1003565
9	1000108	1000824	1001529	1002222	1002904	1003576
10	1000120	1000836	1001540	1002234	1002916	1003587
11	1000132	1000848	1001552	1002245	1002927	1003598
12	1000144	1000860	1001564	1002256	1002938	1003609
13	1000156	1000872	1001575	1002268	1002950	1003620
14	1000168	1000884	1001587	1002279	1002961	1003631
15	1000180	1000895	1001599	1002291	1002972	1003643
16	1000192	1000907	1001610	1002302	1002983	1093654
17	1000204	1000919	1001622	1002318	1002995	1003665
18	1000216	1000931	1001634	1002325	1003006	1003676
19	1000228	1000943	1001645	1002337	1003017	1003687
20	1000240	1000954	1001657	1002348	1003028	1003698
21	1000252	1000966	1001668	1002359	1003040	1003709
22	1000264	1000978	1001680	1002371	1003051	1003720
23	1000276	1000990	1001692	1002382	1003062	1003731
24	1000280	1001001	1001703	1002394	1003073	1003742
25	1000300	1001013	1001715	1002405	1003085	1003754
26	1000312	1001025	1001726	1002416	1003096	1003765
27	1000324	1001037	1001738	1002428	1003107	1003776
28	1000336	1001049	1001750	1002439	1003118	1003787
29	1000348	1001060	1001761	1002451	1003129	1003798
30	1000360	1001072	1001773	1002462	1003141	1003809
31	1000372	1001084	1001784	1002473	1003152	1003820
32	1000384	1001096	1001796	1002485	1003163	1003831
33	1000396	1001108	1001807	1002496	1003174	1003842
34	1000408	1001119	1001819	1002508	1003186	1003853
35	1000420	1001131	1001831	1002519	1003197	1003864
36	1000432	1001143	1001842	1002530	1003208	1003875
37	1000444	1001155	1001854	1002542	1003219	1003886
38	1000456	1001166	1001865	1002553	1003230	1003897
39	1000468	1001178	1001877	1002565	1003242	1003908
40	1000480	1001190	1001888	1002576	1003253	1003919
41	1000492	1001202	1001900	1002587	1003264	1003930
42	1000504	1001213	1001911	1002599	1003275	1003941
43	1000516	1001225	1001923	1002610	1003286	1003952
44	1000527	1001237	1001934	1002621	1003298	1003963
45	1000539	1001248	1001946	1002633	1003309	1003974
46	1000551	1001260	1001958	1002644	1003320	1003985
47	1000563	1001272	1001969	1002655	1003331	1003996
48	1000575	1001284	1001981	1002667	1003342	1004007
49	1000587	1001295	1001992	1002678	1003353	1004018
50	1000599	1001307	1002004	1002689	1003365	1004029
51	1000611	1001319	1002015	1002701	1003376	1004040
52	1000623	1001330	1002027	1002712	1003387	1004051
53	1000635	1001342	1002038	1002723	1003398	1004062
54	1000646	1001354	1002050	1002735	1003409	1004073
55	1000658	1001365	1002061	1002746	1003420	1004084
56	1000670	1001377	1002073	1002757	1003431	1004095
57	1000682	1001389	1002084	1002769	1003443	1004106
58	1000694	1001401	1002096	1002780	1003454	1004117
59	1000706	1001412	1002107	1002791	1003465	1004128
60	1000718	1001424	1002119	1002803	1003476	1004139

Tabula Logarithmorum Logiſticorum.

S.	Log.1°.6′	Log.1°.7′	Log.1°.8′	Log.1°.9′	Lo.1°.10.	Lo.1°.11.
0	1004139	1004792	1005436	1006070	1006695	1007311
1	1004150	1004803	1005446	1006080	1006705	1007321
2	1004161	1004814	1005457	1006091	1006715	1007331
3	1004172	1004825	1005468	1006101	1006725	1007341
4	1004183	1004835	1005478	1006112	1006736	1007351
5	1004194	1004846	1005489	1006122	1006746	1007362
6	1004205	1004857	1005499	1006133	1006757	1007372
7	1004216	1004868	1005510	1006143	1006767	1007382
8	1004227	1004879	1005521	1006153	1006777	1007390
9	1004238	1004889	1005531	1006164	1006787	1007402
10	1004249	1004900	1005542	1006174	1006798	1007412
11	1004260	1004911	1005553	1006185	1006808	1007422
12	1004270	1004922	1005563	1006195	1006818	1007433
13	1004281	1004933	1005574	1006206	1006829	1007443
14	1004292	1004943	1005584	1006216	1006829	1007453
15	1004303	1004954	1005595	1006227	1006849	1007463
16	1004314	1004965	1005606	1006237	1006860	1007473
17	1004325	1004975	1005616	1006248	1006870	1007484
18	1004336	1004987	1005627	1006258	1006880	1007494
19	1004346	1004997	1005638	1006268	1006891	1007504
20	1004358	1005008	1005648	1006279	1006901	1007514
21	1004369	1005018	1005659	1006289	1006911	1007524
22	1004380	1005029	1005669	1006300	1006921	1007534
23	1004391	1005040	1005680	1006310	1006932	1007544
24	1004402	1005051	1005690	1006321	1006942	1007554
25	1004412	1005061	1005701	1006331	1006952	1007565
26	1004423	1005072	1005711	1006342	1006963	1007575
27	1004434	1005083	1005722	1006352	1006973	1007585
28	1004445	1005094	1005733	1006362	1006983	1007595
29	1004456	1005104	1005743	1006373	1006993	1007605
30	1004467	1005115	1005754	1006383	1007004	1007615
31	1004478	1005126	1005764	1006394	1007014	1007625
32	1004489	1005137	1005775	1006404	1007024	1007636
33	1004500	1005147	1005785	1006414	1007034	1007646
34	1004510	1005158	1005796	1006425	1007045	1007656
35	1004521	1005169	1005807	1006435	1007055	1007666
36	1004532	1005179	1005817	1006446	1007065	1007676
37	1004543	1005190	1005828	1006456	1007075	1007686
38	1004554	1005201	1005838	1006466	1007086	1007696
39	1004565	1005212	1005849	1006477	1007096	1007706
40	1004576	1005222	1005859	1006487	1007106	1007716
41	1004586	1005233	1005870	1006498	1007116	1007727
42	1004597	1005244	1005880	1006508	1007127	1007737
43	1004608	1005254	1005891	1006518	1007137	1007747
44	1004619	1005265	1005901	1006529	1007147	1007757
45	1004630	1005276	1005912	1006539	1007157	1007767
46	1004641	1005286	1005923	1006550	1007168	1007777
47	1004652	1005297	1005933	1006560	1007178	1007787
48	1004662	1005308	1005944	1006570	1007188	1007797
49	1004673	1005318	1005954	1006581	1007198	1007807
50	1004684	1005329	1005965	1006591	1007208	1007817
51	1004695	1005340	1005975	1006601	1007219	1007827
52	1004706	1005350	1005986	1006612	1007229	1007837
53	1004717	1005361	1005996	1006622	1007239	1007848
54	1004727	1005372	1006007	1006632	1007249	1007858
55	1004738	1005382	1006017	1006643	1007260	1007868
56	1004749	1005393	1006028	1006653	1007270	1007878
57	1004760	1005404	1006038	1006663	1007280	1007888
58	1004771	1005414	1006049	1006674	1007290	1007898
59	1004781	1005425	1006059	1006684	1007300	1007908
60	1004792	1005436	1006070	1006695	1007311	1007918

CANON DECLINATIONUM PUNCTORUM ECLIPTICÆ, & Angulorum ejus cum Meridiano.

Gradus	♈ Declinatio gr. ′ ″	♎ Angulus Eclipt. & Meridiani gr. ′ ″	♉ Declinatio gr. ′ ″	♏ Angulus Eclipt. & Meridiani gr. ′ ″	♊ Declinatio gr. ′ ″	♐ Angulus Eclipt. & Meridiani gr. ′ ″	Aſcend.
0	0 0 0	60 .8 30	11 30 43	69 .0 36	10 13 22	77 43 13	30
1	0 23 56	66 28 42	11 51 48	69 32 13	20 25 57	78 4 47	29
2	0 47 53	66 19 16	12 12 40	69 44 13	20 38 9	78 26 57	28
3	1 11 49	66 30 14	12 33 21	69 56 35	20 49 58	78 49 15	27
4	1 35 43	66 31 34	12 53 49	70 9 19	21 1 25	79 11 45	26
5	1 59 37	66 33 18	13 14 5	70 22 25	21 12 29	79 34 32	25
6	2 23 28	66 35 14	13 34 7	70 35 54	21 23 7	79 57 32	14
7	2 47 16	66 37 54	13 53 57	80 49 44	21 33 22	80 10 48	23
8	3 11 4	65 40 46	14 13 32	71 3 57	22 43 15	80 44 17	22
9	3 34 47	66 44 0	14 32 51	71 18 3	21 52 42	81 7 58	21
10	3 58 28	66 47 40	14 51 59	71 33 27	22 1 45	81 31 53	20
11	4 22 4	66 51 47	15 10 50	71 48 44	22 10 22	81 56 0	19
12	4 45 37	66 56 6	15 29 26	72 4 23	22 18 35	82 20 18	18
13	5 9 5	67 0 53	15 47 47	72 20 23	22 26 22	82 44 47	17
14	4 32 29	67 6 3	16 5 51	72 36 44	22 33 44	83 9 28	16
15	5 55 47	67 11 36	16 23 39	72 53 26	22 40 39	83 34 17	15
16	6 18 58	67 17 33	16 41 9	73 10 28	22 47 10	83 59 17	14
17	6 42 6	67 23 51	16 58 22	73 27 51	22 52 13	84 24 25	13
18	7 5 6	67 30 34	17 15 18	73 45 36	22 58 51	84 49 42	12
19	7 28 0	67 37 39	17 31 54	74 3 38	23 4 3	85 15 6	11
20	7 50 46	67 45 6	17 48 14	74 22 0	23 8 47	85 41 38	10
21	8 13 26	67 52 57	18 4 14	74 40 45	23 13 5	86 6 15	9
22	8 35 58	68 1 10	18 19 57	74 59 47	23 16 56	86 31 59	8
23	8 58 20	68 9 46	18 35 18	75 19 9	23 20 20	86 57 48	7
24	9 20 34	68 18 46	18 50 21	75 38 50	23 23 18	87 23 41	6
25	9 42 41	68 28 7	19 5 4	75 58 47	23 25 48	87 49 38	5
26	10 4 38	68 37 51	19 19 16	76 19 9	13 27 51	88 15 39	4
27	10 26 24	68 48 0	19 33 17	76 39 41	23 29 27	88 41 42	3
28	10 48 2	68 58 29	19 47 7	77 0 33	23 30 35	89 7 48	2
29	11 9 27	69 9 20	20 0 26	77 21 45	21 31 17	89 33 54	1
30	11 30 43	69 20 36	20 13 22	77 43 13	23 31 30	90 0 0	0
Deſc.	♓	♍	♒	♌	♑	♋	Grad.

Tabula Declinationum.

Latitudo Septentrionalis. ♎ Latitudo Meridionalis.

0	1	2	3	4	5	6	7	8	9	
gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	Grad.
0 0	0 55	1 50	2 45	3 40	4 35	5 30	6 25	7 20	8 15	30
0 24	1 19	2 14	3 9	4 4	4 59	5 54	6 49	7 44	8 39	29
0 48	1 43	2 38	3 33	4 28	5 23	6 18	7 13	8 8	9 3	28
1 12	2 7	3 2	3 57	4 52	5 47	6 42	7 36	8 32	9 26	27
1 36	2 31	3 26	4 21	5 16	6 11	7 6	8 0	8 55	9 50	26
2 0	2 55	3 50	4 45	5 40	6 35	7 30	8 24	9 19	10 14	25
2 24	3 19	4 14	5 9	6 4	6 59	7 54	8 49	9 44	10 39	24
2 47	3 43	4 38	5 33	6 28	7 23	8 18	9 13	10 8	11 3	23
3 11	4 7	5 2	5 57	6 52	7 47	8 41	9 37	10 32	11 27	22
3 35	4 30	5 25	6 20	7 15	8 10	9 5	10 0	10 55	11 50	21
3 58	4 54	5 48	6 44	7 39	8 34	9 29	10 24	11 19	12 14	20
4 22	5 18	6 12	7 8	8 3	8 58	9 53	10 48	11 43	12 38	19
4 46	5 42	6 36	7 32	8 27	9 22	10 17	11 12	12 7	13 2	18
5 10	6 5	7 0	7 55	8 50	9 46	10 41	11 36	12 31	13 26	17
5 33	6 29	7 24	8 19	9 14	10 10	11 5	12 0	12 54	13 49	16
5 56	6 52	7 47	8 42	9 37	10 33	11 28	12 23	13 18	14 13	15
6 19	7 14	8 9	9 5	10 0	10 56	11 51	12 46	13 41	14 36	14
6 42	7 37	8 32	9 28	10 23	11 19	12 14	13 9	14 4	14 59	13
7 5	8 0	8 56	9 51	10 46	11 42	12 37	13 32	14 27	15 22	12
7 28	8 23	9 18	10 14	11 9	12 5	13 0	13 55	14 50	15 45	11
7 51	8 46	9 42	10 38	11 33	12 28	13 23	14 19	15 14	16 9	10
8 13	9 5	10 9	11 1	11 56	12 51	13 46	14 42	15 37	16 32	9
8 36	9 32	10 28	11 23	12 19	13 14	14 10	15 5	16 0	16 55	8
8 58	9 55	10 51	11 46	12 42	13 37	14 33	15 28	16 23	17 18	7
9 21	10 17	11 13	12 8	13 4	14 0	14 55	15 51	16 46	17 41	6
9 43	10 39	11 35	12 30	13 26	14 22	15 18	16 14	17 9	18 4	5
10 5	11 1	11 57	12 52	13 48	14 44	15 40	16 36	17 31	18 27	4
10 26	11 23	12 19	13 14	14 10	15 6	16 2	16 58	17 54	18 49	3
10 48	11 45	12 41	13 36	14 32	15 28	16 24	17 20	18 16	19 11	2
11 9	12 5	13 2	13 57	14 53	15 49	16 45	17 41	18 37	19 33	1
11 31	12 27	13 23	14 19	15 15	16 11	17 7	18 3	18 59	19 55	0

Latitudo Meridionalis. ♍ Latitudo Septentrionalis. ♓ ♍

Tabula Declinationum.

♈ Latitudo Meridionalis. ♎ Latitudo Septentrionalis.

♈ ♎	0	1	2	3	4	5	6	7	8	9	
Grad.	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	Grad.
0	0 0	0 55	1 50	2 45	3 40	4 35	5 30	6 25	7 20	8 15	30
1	0 24	0 31	1 27	2 21	3 16	4 11	5 6	6 1	6 56	7 51	29
2	0 48	0 7	1 2	1 57	2 52	3 47	4 42	5 37	6 32	7 27	28
3	1 12	0 17	0 38	1 34	2 29	3 24	4 19	5 14	6 9	7 4	27
4	1 36	0 41	0 15	1 10	2 5	3 0	3 55	4 50	5 45	6 40	26
5	2 0	1 5	0 9	0 46	1 41	2 36	3 31	4 26	5 21	6 16	25
6	2 24	1 29	0 33	0 22	1 17	2 12	3 7	4 2	4 57	5 52	24
7	2 47	1 52	0 57	0 2	0 53	1 48	2 43	3 38	4 33	5 28	23
8	3 11	2 16	1 21	0 26	0 29	1 25	2 20	3 15	4 10	5 5	22
9	3 35	2 39	1 44	0 49	0 6	1 2	1 57	2 52	3 47	4 42	21
10	3 58	3 3	2 8	1 13	0 18	0 38	1 33	2 28	3 23	4 19	20
11	4 22	3 27	2 32	1 37	0 41	0 14	1 9	2 5	3 0	3 56	19
12	4 46	3 51	2 56	2 1	1 5	0 10	0 47	1 42	2 38	3 33	18
13	5 10	4 14	3 19	2 24	1 29	0 33	0 24	1 19	2 15	3 10	17
14	5 33	4 37	3 41	2 57	1 52	0 56	0 0	0 56	1 52	2 47	16
15	5 56	5 0	4 5	3 10	2 15	1 19	0 24	0 33	1 29	2 23	15
16	6 19	5 23	4 28	3 32	2 37	1 41	0 47	0 9	1 5	2 0	14
17	6 32	5 46	4 51	3 55	3 0	2 4	1 9	0 14	0 42	1 37	13
18	7 5	6 9	5 14	4 18	3 23	2 27	1 32	0 36	0 19	1 15	12
19	7 28	6 32	5 37	4 41	3 46	2 50	1 55	0 59	0 3	0 53	11
20	7 51	6 55	5 59	5 4	4 8	3 12	2 17	1 21	0 25	0 31	10
21	8 13	7 17	6 21	5 27	4 30	3 34	2 40	1 43	0 47	0 8	9
22	8 36	7 40	6 44	5 50	4 53	3 57	3 1	2 5	1 11	0 15	8
23	8 58	8 3	7 7	6 12	5 15	4 19	3 23	2 27	1 32	0 37	7
24	9 21	8 25	7 30	6 34	5 38	4 42	3 46	2 50	1 55	0 59	6
25	9 43	8 47	7 52	6 56	6 0	5 4	4 8	3 12	2 17	1 21	5
26	10 5	9 0	8 14	7 18	6 22	5 26	4 30	3 34	2 38	1 42	4
27	10 26	9 31	8 35	7 50	6 43	5 47	4 51	3 55	2 59	2 3	3
28	10 48	9 53	8 57	8 1	7 4	6 8	5 12	4 16	3 20	2 24	2
29	11 9	10 14	9 18	8 22	7 25	6 29	5 33	4 36	3 40	2 44	1
30	11 31	10 35	9 39	8 43	7 46	6 50	5 54	4 57	4 1	3 5	0

♓ Latitudo Septentrionalis. ♍ Latitudo Meridionalis. ♓ ♍

Tabula Declinationum.

Latitudo Septentrionalis.						♏ Latitudo Meridionalis.				
0	1	2	3	4	5	6	7	8	9	
gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	Grad.
11 32	12 27	13 23	14 19	15 25	16 11	17 7	18 3	18 59	19 55	30
11 52	12 48	13 44	14 40	15 36	16 33	17 29	18 25	19 21	20 17	29
12 13	13 9	14 5	15 1	15 57	16 54	17 50	18 46	19 42	20 38	28
12 33	13 30	14 26	15 22	16 18	17 15	18 11	19 7	20 3	20 59	27
12 54	13 51	14 47	15 43	16 39	17 36	18 32	19 28	20 24	21 10	26
13 14	14 11	15 7	16 4	17 0	17 57	18 53	19 49	20 45	21 41	25
13 34	14 31	15 27	16 24	17 20	18 17	19 13	20 10	21 6	22 2	24
13 54	14 51	15 47	16 44	17 40	18 37	19 33	20 30	21 16	22 22	23
14 14	15 11	16 7	17 4	18 0	18 57	19 53	20 50	21 46	22 43	22
14 33	15 30	16 26	17 23	18 20	19 17	20 13	21 20	22 6	23 3	21
14 52	15 49	16 45	17 42	18 39	19 36	20 33	21 30	22 26	23 23	20
15 11	16 8	17 4	18 1	18 58	19 55	20 52	21 49	22 46	23 43	19
15 29	16 26	17 23	18 20	19 17	20 14	21 11	22 8	23 5	24 2	18
15 48	16 45	17 42	18 39	19 36	20 33	21 30	22 27	23 24	24 21	17
16 6	17 3	18 0	18 57	19 54	20 52	21 49	22 46	23 43	24 40	16
16 24	17 21	18 18	19 15	20 12	21 10	22 7	23 4	24 2	24 58	15
16 41	17 38	18 36	19 33	20 30	21 28	22 25	3 22	14 19	25 16	14
16 58	17 55	18 53	19 51	20 48	21 46	22 43	13 40	24 37	25 24	13
17 15	18 12	19 10	20 8	21 5	22 3	13 0	23 57	14 55	25 52	12
17 32	18 29	19 27	20 25	21 22	22 20	23 17	24 14	25 12	26 10	11
17 48	18 46	19 44	20 41	21 39	22 37	23 34	24 21	15 29	26 27	10
18 4	19 2	20 0	20 57	21 55	22 53	23 51	24 48	25 46	26 44	9
18 20	19 18	20 16	21 13	22 11	23 9	24 7	15 5	16 3	27 1	8
18 35	19 34	20 32	21 29	22 27	22 25	14 23	25 21	26 10	27 17	7
18 50	19 49	20 47	21 45	22 43	23 41	24 39	25 37	26 35	27 33	6
19 5	20 3	21 2	22 0	22 58	23 56	24 54	25 52	26 50	27 48	5
19 19	20 17	21 16	22 14	23 12	24 11	15 9	26 7	17 5	28 2	4
19 33	20 31	21 30	22 18	23 26	24 25	25 23	26 22	27 19	28 17	3
19 47	20 45	21 44	22 42	23 40	24 39	25 37	16 35	27 33	28 31	2
20 0	20 59	21 57	21 56	23 54	24 53	25 51	26 49	17 47	28 45	1
20 13	21 12	22 10	23 9	24 7	25 6	26 4	27 3	28 1	28 59	0
Latitudo Septentrionalis.						♒ Latitudo Meridionalis.				♌ ♒

Tabula Declinationum.

♉ Latitudo Meridionalis. ♏ Latitudo Septentrionalis.

♉ ♏	0	1	2	3	4	5	6	7	8	9	
Grad.	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	Grad.
0	11 32	10 35	9 39	8 43	7 46	6 50	5 54	4 57	4 1	3 5	30
1	11 52	10 56	10 0	9 4	8 7	7 11	6 14	5 17	4 21	3 26	29
2	12 13	11 17	10 20	9 24	8 27	7 31	6 34	5 37	4 42	3 46	28
3	12 33	11 37	10 40	9 44	8 47	7 51	6 54	5 57	5 1	4 5	27
4	12 54	11 58	11 1	10 4	9 8	8 11	7 15	6 18	5 21	4 25	26
5	13 14	12 18	11 21	10 24	9 28	8 31	7 35	6 38	5 41	4 44	25
6	13 34	12 38	11 41	10 44	9 48	8 51	7 54	6 57	6 0	5 3	24
7	13 54	12 58	12 58	11 4	10 7	9 10	8 13	7 16	6 19	5 22	23
8	14 14	13 17	12 20	11 23	10 26	9 29	8 32	7 35	6 38	5 41	22
9	14 33	13 36	12 39	11 42	10 45	9 48	8 51	7 54	6 57	6 0	21
10	14 51	13 55	12 58	12 1	11 4	10 7	9 10	8 13	7 16	6 19	20
11	15 11	14 14	13 17	12 20	11 23	10 25	9 28	8 31	7 34	6 37	19
12	15 29	14 32	13 35	12 38	11 41	10 43	9 46	8 49	7 52	6 55	18
13	15 48	14 50	13 53	12 56	11 59	11 1	10 4	9 7	8 10	7 14	17
14	16 6	15 8	14 11	13 14	12 17	11 19	10 22	9 14	8 27	7 30	16
15	16 24	15 26	14 29	13 31	12 34	11 36	10 39	9 41	8 44	7 46	15
16	16 41	15 43	14 46	13 48	12 51	11 53	10 56	9 58	9 1	8 3	14
17	16 58	16 0	15 3	14 5	13 8	12 10	11 12	10 15	9 17	8 19	13
18	17 15	16 19	15 20	14 22	13 24	12 26	11 29	10 31	9 33	8 35	12
19	17 32	16 34	15 36	14 38	13 40	12 42	11 45	10 48	9 49	8 51	11
20	17 48	16 50	15 92	14 54	13 56	12 58	12 1	11 2	10 5	9 7	10
21	18 4	17 6	16 8	15 10	14 12	13 14	12 16	11 18	10 20	9 22	9
22	18 20	17 22	16 24	15 26	14 28	13 29	12 31	11 33	10 35	9 37	8
23	18 35	17 37	16 39	15 41	14 43	13 44	12 46	11 48	10 50	9 51	7
24	18 50	17 52	16 54	15 56	14 58	13 59	13 1	12 3	11 5	10 7	6
25	19 5	18 7	17 9	16 10	15 12	14 13	13 15	11 17	11 19	10 21	5
26	19 19	18 21	17 23	16 24	15 26	14 27	13 29	12 21	11 32	10 35	4
27	19 33	18 35	17 36	16 38	15 39	14 41	13 42	12 44	11 46	10 48	3
28	19 47	18 48	17 50	16 52	15 51	14 54	13 55	12 57	11 59	11 1	2
29	20 0	19 1	18 3	17 4	16 5	15 7	14 8	13 10	12 12	11 14	1
30	20 13	19 14	18 16	17 17	16 18	15 20	14 21	13 22	12 24	11 25	0

♌ Latitudo Meridionalis. ♒ Latitudo Septentrionalis. ♌ ♒

Tabula Declinationum.

♊ Latitudo Septentrionalis. ♐ Latitudo Meridionalis.

♊ ♐	0	1	2	3	4	5	6	7	8	9	
Grad.	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	Grad.
0	20 13	21 12	22 10	23 9	24 7	25 6	26 4	27 3	28 1	28 59	30
1	20 26	21 23	22 22	23 21	24 20	25 19	26 17	27 16	28 15	19 14	29
2	20 38	21 36	22 35	23 34	24 33	25 32	26 30	27 29	28 18	29 27	28
3	20 50	21 48	22 47	23 46	24 45	25 44	26 43	27 42	28 41	29 40	27
4	21 1	22 0	22 59	23 58	24 57	25 56	26 55	27 54	28 53	29 52	26
5	21 13	22 11	23 10	24 9	25 8	26 7	27 6	28 5	19 4	30 3	25
6	21 23	21 22	23 21	24 20	25 19	26 18	27 17	18 16	29 15	30 14	24
7	21 33	22 33	23 32	24 31	25 30	26 29	27 28	28 27	29 26	30 25	23
8	21 43	22 42	23 42	24 41	25 40	26 39	27 38	28 38	29 37	30 36	22
9	21 53	22 53	23 52	24 51	25 50	26 49	27 48	28 48	29 47	30 46	21
10	22 2	23 2	24 1	25 0	25 59	16 58	27 57	18 57	29 56	30 55	20
11	22 10	23 10	24 9	25 9	26 8	27 7	28 6	29 6	30 5	31 5	19
12	22 19	23 19	24 18	25 18	26 17	27 16	28 15	29 15	30 15	31 14	18
13	22 27	23 27	24 26	25 26	26 25	27 25	28 24	29 24	30 24	31 23	17
14	22 34	23 34	24 33	25 33	26 33	27 32	28 32	29 32	30 32	32 31	16
15	22 41	23 41	24 40	25 40	26 40	27 39	28 39	29 39	30 39	32 38	15
16	22 47	23 47	24 46	25 46	26 46	27 45	28 45	19 45	30 45	31 45	14
17	22 53	23 53	24 57	25 53	26 52	27 52	28 52	29 52	30 52	31 51	13
18	22 59	23 59	24 59	25 59	26 58	27 58	28 58	29 58	30 58	31 57	12
19	23 4	24 4	25 4	26 4	17 3	18 3	29 3	30 3	31 3	32 3	11
20	23 9	24 9	25 9	26 9	27 8	28 8	19 8	30 8	31 8	31 8	10
21	23 13	24 13	15 13	26 13	27 12	28 12	29 12	30 12	31 12	32 12	9
22	23 17	24 17	25 17	26 17	27 16	28 16	29 16	30 16	31 16	32 16	8
23	23 20	24 20	25 20	26 20	27 19	28 19	29 19	30 10	31 19	32 19	7
24	23 23	24 23	25 23	26 23	27 22	28 22	29 22	30 22	31 22	32 22	6
25	23 26	24 26	25 26	26 26	20 25	28 25	29 25	30 25	31 25	32 25	5
26	22 28	24 28	25 28	26 28	27 28	28 18	29 28	30 28	31 28	32 28	4
27	23 29	24 29	25 29	26 29	27 30	28 29	29 19	30 29	31 29	32 29	3
28	23 30	24 30	25 30	26 30	27 30	28 30	29 30	30 30	31 30	32 30	2
29	23 31	24 31	25 31	26 31	27 31	28 31	29 21	30 31	31 31	32 21	1
30	23 31	24 31	15 31	16 31	27 31	28 31	29 31	30 31	31 31	32 31	0

♑ Latitudo Meridionalis. ♋ Latitudo Septentrionalis. ♑ ♋

Tabula Declinationum.

♊ Latitudo Meridionalis. ♐ Latitudo Septentrionalis.

♊ ♐	0	1	2	3	4	5	6	7	8	9	
Grad.	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	Grad.
0	20 13	19 14	18 25	17 17	16 18	15 19	14 20	13 21	12 23	11 24	30
1	20 26	19 27	18 28	17 29	16 30	15 32	14 33	13 34	12 35	11 37	29
2	20 38	19 39	18 40	17 41	16 42	15 44	14 45	13 46	12 47	11 48	28
3	20 50	19 51	18 52	17 53	16 54	15 56	14 57	13 58	12 59	12 0	27
4	21 1	20 2	19 3	18 4	17 6	16 7	15 8	14 9	13 10	12 11	26
5	21 12	20 14	19 15	18 16	17 17	16 18	15 19	14 20	13 21	12 22	25
6	21 21	20 24	19 25	18 26	17 27	16 28	15 28	14 29	13 30	12 31	24
7	21 33	20 34	19 35	18 36	17 37	16 37	15 38	14 39	13 40	12 40	23
8	21 43	20 44	19 45	18 46	17 47	16 47	15 48	14 48	13 49	12 49	22
9	21 53	20 54	19 55	18 56	17 56	16 56	15 57	14 57	13 58	12 58	21
10	22 2	21 3	20 4	19 4	18 5	17 5	16 5	15 6	14 7	13 7	20
11	22 10	21 11	20 11	19 12	18 13	17 13	16 13	15 14	14 15	13 15	19
12	22 19	21 20	20 20	19 21	18 21	17 22	16 21	15 22	14 23	13 23	18
13	22 27	22 28	20 28	19 28	18 29	17 29	16 29	15 30	14 30	13 30	17
14	22 34	21 35	20 25	19 35	18 36	17 36	16 36	15 37	14 37	13 37	16
15	22 41	21 41	20 41	19 41	18 42	17 42	16 42	15 43	14 43	13 43	15
16	22 47	21 47	20 47	19 47	18 48	17 48	16 48	15 49	14 49	13 49	14
17	22 53	21 53	20 53	19 53	18 54	17 54	16 54	15 55	14 55	13 55	13
18	22 59	21 59	20 59	19 59	19 0	18 0	17 0	16 0	15 1	14 1	12
19	23 4	22 4	21 4	20 4	19 5	18 5	17 5	16 5	15 6	14 6	11
20	23 9	22 9	21 9	20 9	19 9	18 9	17 10	16 10	15 10	14 10	10
21	23 13	22 13	21 13	20 13	19 13	18 13	17 13	16 14	15 14	14 14	9
22	23 17	22 17	21 17	20 17	19 17	18 17	17 17	16 17	15 17	14 17	8
23	23 20	22 20	21 20	20 20	19 20	18 20	17 20	16 20	15 20	14 20	7
24	23 23	22 23	21 23	20 23	19 23	18 23	17 23	16 23	15 23	14 23	6
25	23 26	22 26	21 26	20 26	19 26	18 26	17 26	16 26	15 26	14 26	5
26	23 27	22 18	21 28	20 28	19 28	18 28	17 28	16 28	15 28	14 28	4
27	23 19	22 29	21 29	20 29	19 29	18 29	17 29	16 29	15 29	14 29	3
28	23 30	22 30	21 30	20 30	19 30	18 30	17 30	16 30	15 30	14 30	2
29	23 31	22 31	21 31	20 31	19 31	18 31	17 21	16 31	15 31	14 31	1
30	23 31	22 31	21 31	20 31	19 31	18 31	17 31	16 31	15 31	14 31	0
♑ Latitudo Septentrionalis.							♋ Latitudo Meridionalis.				♑ ♋

Tabula Aſcenſionum Rectarum.

...itudo Septentrionalis. ♎ Latitudo Meridionalis. Add. 180. gr.

0	1	2	3	4	5	6	7	8	9
gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '
0	359 37	359 15	358 49	358 24	358 1	357 37	357 13	356 48	356 23
55	0 32	0 8	359 44	359 20	358 56	358 32	358 8	357 43	357 18
50	1 27	1 3	0 39	0 15	359 51	359 27	359 3	358 38	358 13
45	2 22	1 58	1 34	1 10	0 46	0 22	359 58	359 34	359 9
40	3 17	2 53	2 29	2 5	1 41	1 17	0 53	0 29	0 4
35	4 12	3 48	3 24	3 0	2 36	2 12	1 48	1 24	0 59
30	5 7	4 43	4 19	3 55	3 31	3 7	2 43	2 19	1 54
25	6 2	5 38	5 14	4 50	4 26	4 2	3 38	3 14	2 49
21	6 57	6 33	6 9	5 45	5 21	4 57	4 33	4 9	3 44
16	7 52	7 28	7 4	6 40	6 16	5 51	5 28	5 4	4 39
11	8 47	8 23	7 59	7 35	7 11	6 47	6 23	5 59	5 34
0 6	9 42	9 18	8 55	8 31	8 7	7 43	7 19	6 55	6 30
1 2	10 38	10 14	9 51	9 27	9 3	8 39	8 15	7 51	7 26
1 57	11 33	11 9	10 46	10 22	9 58	9 34	9 10	8 46	8 22
2 53	12 29	12 5	11 42	11 18	10 54	10 30	10 6	9 42	9 18
3 48	13 25	13 1	12 38	12 14	11 50	11 26	11 2	10 38	10 14
4 44	14 20	13 57	13 34	13 10	12 46	12 22	11 58	11 34	11 10
5 40	15 16	14 53	14 30	14 6	13 42	13 18	12 54	12 30	12 6
6 35	16 12	15 49	15 26	15 2	14 39	14 15	13 51	13 27	13 3
7 31	17 8	16 45	16 22	15 58	15 35	15 11	14 47	14 23	13 59
8 27	18 4	17 41	17 18	16 54	16 31	16 7	15 44	15 20	14 56
9 23	19 0	18 37	18 14	17 51	17 28	17 4	16 41	16 17	15 53
0 20	19 56	19 33	19 11	18 48	18 25	18 1	17 38	17 14	16 50
1 16	20 53	20 30	20 8	19 45	19 22	18 58	18 35	18 11	17 47
2 12	21 50	21 27	21 5	20 42	20 19	19 55	19 32	19 8	18 44
3 9	22 47	22 24	22 2	21 39	21 16	20 52	20 29	20 5	19 41
4 6	23 44	23 21	22 59	12 36	22 13	21 50	21 27	21 3	20 39
5 2	24 41	24 19	23 57	23 34	23 11	22 48	22 25	22 1	21 37
5 59	25 38	25 16	24 54	24 31	24 9	23 46	23 23	22 59	12 35
6 57	26 35	26 13	25 51	25 29	25 7	24 44	24 21	23 57	23 34
7 54	27 53	27 11	26 49	26 27	26 5	25 42	25 19	24 56	24 32

Tabula Aſcenſionum Rectarum.

♈ Latitudo Meridionalis. ♎ Latitudo Septentrionalis. Add. 180. gr.

♈ ♎	0	1	2	3	4	5	6	7	8	9
Grad.	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′
0	0 0	0 23	0 47	1 11	1 35	1 59	2 23	2 47	3 11	3 36
1	0 55	1 18	1 42	2 6	2 30	2 54	3 18	3 42	4 6	4 30
2	1 50	2 13	2 37	3 1	3 25	3 40	4 13	4 37	5 1	5 25
3	2 45	3 8	3 32	3 56	4 20	4 44	5 8	5 32	5 56	6 20
4	3 40	4 3	4 27	4 51	5 15	5 39	6 3	6 27	6 51	7 15
5	4 35	4 58	5 22	5 46	6 10	6 34	6 58	7 22	7 46	8 9
6	5 30	5 54	6 18	6 42	7 6	7 30	7 53	8 17	8 41	9 4
7	6 25	6 49	7 13	7 37	8 1	8 25	8 48	9 12	9 36	9 59
8	7 21	7 44	8 8	8 32	8 56	9 20	9 43	10 7	10 30	10 53
9	8 16	8 40	9 4	9 28	9 51	10 15	10 38	11 2	11 25	11 48
10	9 11	9 35	9 59	10 23	10 46	11 10	11 33	11 57	12 19	12 42
11	10 6	10 30	10 54	11 18	11 41	12 5	12 28	12 52	13 14	13 37
12	11 2	11 25	11 49	12 13	12 36	13 0	13 23	13 47	14 9	14 32
13	11 57	12 20	12 44	13 8	13 31	13 55	14 18	14 42	15 4	15 27
14	12 53	13 16	13 39	14 3	14 26	14 50	15 13	15 36	15 59	16 21
15	13 48	14 11	14 35	14 58	15 21	15 45	16 8	16 31	16 54	17 16
16	14 44	15 7	15 30	15 53	16 16	16 40	17 3	17 26	17 49	18 11
17	15 40	16 2	16 25	16 48	17 11	17 35	17 58	18 21	18 44	19 6
18	16 35	16 58	17 21	17 44	18 7	18 30	18 53	19 16	19 39	20 1
19	17 31	17 54	18 17	18 40	19 2	19 25	19 48	20 11	20 34	20 56
20	18 27	18 50	19 13	19 36	19 58	20 21	20 43	21 6	21 29	21 51
21	19 23	19 46	20 9	20 32	20 54	21 17	21 39	22 2	22 14	22 46
22	20 20	20 42	21 5	11 28	21 50	22 12	22 34	22 57	23 19	23 41
23	21 16	21 38	22 1	22 24	22 46	13 8	23 30	23 52	24 14	24 36
24	22 12	22 35	22 57	23 20	23 42	24 4	24 25	24 48	25 10	25 32
25	23 9	23 31	23 53	24 16	24 38	25 0	25 21	25 43	26 5	26 27
26	24 6	24 28	24 50	25 12	25 14	25 56	26 17	26 39	27 0	27 22
27	25 2	25 25	25 47	26 9	26 30	26 52	27 13	27 35	27 56	28 17
28	25 59	26 22	26 43	17 5	27 26	27 48	28 9	28 30	28 51	29 12
29	26 57	27 19	27 40	28 2	28 22	28 43	29 5	29 26	29 47	30 8
30	27 54	28 16	28 38	28 58	29 19	29 40	30 1	30 22	30 43	31 4

Tabula Aſcenſionum Rectarum.

Latitudo Septentrionalis. ♏ Latitudo Meridionalis. Add. 180. gr.

m	0	1	2	3	4	5	6	7	8	9
d.	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '
	27 54	27 33	27 11	26 49	26 27	26 5	25 42	25 19	24 56	24 31
	28 51	28 30	28 8	27 47	27 25	27 3	26 40	26 17	25 54	25 31
	29 49	29 27	29 6	28 45	28 23	28 1	27 38	27 16	26 52	26 30
	30 46	30 25	30 4	29 43	29 21	28 59	28 37	28 15	27 52	27 29
	31 44	31 23	31 2	30 41	30 19	29 58	29 36	29 14	28 51	28 28
	32 42	32 22	32 0	31 39	31 18	30 57	30 35	30 13	29 50	29 27
	33 40	33 20	32 59	32 38	32 17	31 56	31 34	31 12	30 50	30 27
	34 38	34 18	33 58	33 37	33 16	32 55	32 33	32 12	31 50	31 27
	35 37	35 17	34 57	34 36	34 15	33 54	33 33	33 12	32 50	32 27
	36 36	36 16	35 56	35 36	35 25	34 54	34 33	34 12	33 52	33 27
	37 35	37 15	36 55	36 35	36 15	35 54	35 33	35 12	34 51	34 28
	38 34	38 14	37 54	37 35	37 15	36 54	36 33	36 11	35 52	35 29
	39 33	39 24	38 54	38 35	38 15	37 55	37 34	37 14	36 53	36 30
	40 33	40 13	39 54	39 35	39 15	38 56	38 35	38 15	37 54	37 32
	41 32	41 13	40 54	40 35	40 16	39 57	39 36	39 16	38 56	38 34
	42 31	42 13	41 54	41 36	41 17	40 58	40 38	40 18	39 58	39 36
	43 31	43 13	42 54	42 36	42 18	41 59	41 39	41 19	41 0	40 38
	44 31	44 13	43 55	43 37	43 19	43 0	42 40	42 21	42 2	41 40
	45 31	45 14	44 56	44 38	44 20	44 1	43 42	43 23	43 4	42 43
	46 32	46 14	45 57	45 39	45 21	45 3	44 44	44 25	44 7	43 46
	47 32	47 15	46 58	46 40	46 23	46 5	45 46	45 28	45 10	44 50
	48 33	48 16	47 59	47 42	47 25	47 7	46 49	40 31	46 13	45 54
	49 34	49 17	49 0	48 44	48 27	48 9	47 52	47 34	47 16	46 58
	50 35	50 18	50 2	49 46	49 29	49 12	48 55	48 37	48 20	48 3
	51 36	51 20	51 4	50 48	50 32	50 15	49 58	49 41	49 24	49 7
	52 38	52 22	52 6	51 51	51 35	51 18	51 2	50 45	50 28	50 12
	53 40	53 24	53 9	52 54	52 38	52 22	52 6	51 40	51 33	51 17
	54 42	54 27	54 12	53 57	53 42	53 26	53 10	52 54	52 38	52 22
2	55 44	55 29	55 15	55 0	54 45	54 30	54 14	53 58	53 43	53 27
	56 46	56 32	56 18	56 3	55 49	55 34	55 18	55 8	54 48	54 32
	57 48	57 35	57 21	57 7	56 53	56 38	56 23	56 8	55 53	55 37

Tabula Aſcenſionum Rectarum.

♉ Latitudo Meridionalis. ♏ Latitudo Septentrionalis. Add. 180. gr.

♉ ♏ Grad.	0 gr. ′	1 gr. ′	2 gr. ′	3 gr. ′	4 gr. ′	5 gr. ′	6 gr. ′	7 gr. ′	8 gr. ′	9 gr. ′
0	27 54	28 16	28 37	28 58	29 19	29 40	30 1	50 22	30 43	31 4
1	28 51	29 13	29 34	29 55	30 16	30 37	30 57	31 18	31 39	31 59
2	29 49	30 10	30 31	30 51	31 13	31 34	31 54	32 14	32 35	32 55
3	30 46	31 7	31 28	31 49	32 10	32 31	32 51	35 11	33 51	33 51
4	31 44	32 5	32 25	32 46	33 7	33 27	35 47	34 7	34 27	34 45
5	32 42	33 3	33 23	33 43	34 4	34 24	34 44	35 4	35 13	35 42
6	35 40	54 2	34 21	34 41	35 1	35 21	35 41	36 0	56 20	36 38
7	34 38	34 59	35 19	35 39	35 58	36 18	36 38	56 57	37 16	37 34
8	35 37	35 57	36 17	36 37	36 56	37 15	37 35	37 54	38 13	38 31
9	36 36	36 56	37 15	37 35	37 54	38 13	38 32	38 51	39 10	39 28
10	37 35	37 54	38 13	38 33	38 52	39 11	59 29	39 48	40 7	40 25
11	38 34	38 53	39 12	39 31	39 50	40 9	40 27	40 45	41 4	41 22
12	39 33	39 52	40 11	40 30	40 48	41 7	41 25	41 43	42 1	42 18
13	40 32	40 51	41 30	41 28	41 46	42 5	42 23	42 41	42 58	45 15
14	41 31	41 50	42 9	42 27	42 45	43 3	43 21	43 39	43 56	44 12
15	42 31	42 50	43 8	45 26	45 44	44 2	44 19	44 37	44 54	45 10
16	43 31	43 49	44 7	44 25	44 43	45 0	45 17	45 35	45 51	46 7
17	44 31	44 49	45 6	45 24	45 42	45 59	46 15	46 33	46 40	47 4
18	45 31	45 49	46 6	46 23	46 41	46 58	47 14	47 31	47 47	48 2
19	46 32	46 49	47 6	47 23	47 40	47 57	48 13	48 19	48 45	48 59
20	47 32	47 49	48 6	48 22	48 39	48 56	69 12	49 28	49 43	49 57
21	48 33	48 50	49 6	49 23	49 39	49 55	50 11	50 26	50 41	50 55
22	49 34	49 50	50 6	50 23	50 38	50 54	51 10	51 25	51 40	52 53
23	50 35	50 51	51 6	51 23	51 38	51 53	52 9	52 24	52 38	52 51
24	51 36	51 52	52 7	52 23	52 38	52 53	53 8	53 23	53 37	53 49
25	52 38	52 53	53 8	53 24	53 38	53 53	54 8	54 22	54 36	54 48
26	53 40	53 55	54 9	54 24	54 38	54 53	55 7	55 21	55 35	55 47
27	54 42	54 56	55 21	55 25	55 39	55 53	56 7	56 21	56 34	56 46
28	55 44	55 58	56 12	56 26	56 40	56 54	57 7	57 20	57 35	57 45
29	56 46	57 0	57 13	57 27	57 41	57 54	58 7	58 20	58 31	58 44
30	57 48	58 2	58 15	58 29	58 42	58 55	59 7	59 20	59 32	59 43

Tabula Aſcenſionum Rectarum.

do Septentrionalis. ♐ Latitudo Meridionalis. Add, 180. gr.

	1	2	3	4	5	6	7	8	9
'	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '
48	57 35	57 21	57 7	56 53	56 38	56 23	56 8	55 53	55 38
51	58 38	58 24	58 10	57 57	57 42	57 28	57 13	56 59	56 44
53	59 41	59 27	59 14	59 1	58 47	58 33	58 19	58 5	57 50
56	60 44	60 31	60 18	60 5	59 52	59 38	59 25	59 11	58 57
59	61 47	61 35	61 22	61 10	60 57	60 44	60 31	60 17	60 4
3	62 51	62 39	62 27	62 15	62 2	61 50	61 37	61 24	61 11
6	63 55	63 43	63 32	63 20	63 8	62 56	62 44	62 31	62 18
9	64 59	64 47	64 37	64 25	64 13	64 2	63 50	63 38	63 25
13	66 3	65 52	65 42	65 30	65 19	65 8	64 56	64 45	64 33
7	67 7	66 57	66 47	66 36	66 25	66 14	66 3	65 52	65 41
1	68 11	68 2	67 52	67 42	67 31	67 21	67 10	67 0	66 49
5	69 16	69 7	68 57	68 48	68 38	68 28	68 18	68 8	67 57
9	70 21	70 12	70 3	69 54	69 45	69 35	69 26	69 16	69 5
4	71 26	71 17	71 9	71 0	70 51	70 42	70 33	70 24	70 14
8	72 31	72 22	72 15	72 6	71 58	71 49	71 41	71 32	71 23
3	73 36	73 28	73 21	73 13	73 5	72 57	72 49	72 41	72 32
7	74 41	74 33	74 27	74 19	74 12	74 4	73 57	73 49	73 41
2	75 46	75 39	75 33	75 26	75 19	75 12	75 5	74 58	74 50
7	76 51	76 45	76 39	76 33	76 27	76 20	76 14	76 7	75 59
2	77 56	77 51	77 45	77 40	77 34	77 28	77 22	77 16	77 9
7	79 2	78 57	78 53	78 47	78 41	78 36	78 30	78 25	78 18
2	80 8	80 3	79 59	79 54	79 49	79 44	79 39	79 34	79 28
7	81 13	81 9	81 5	81 1	80 56	80 52	80 48	80 43	80 37
2	82 18	82 15	82 11	82 8	82 4	82 0	81 57	81 52	81 47
8	83 24	83 21	83 18	83 15	83 12	83 9	83 6	83 2	82 57
3	84 30	84 27	84 25	84 22	84 20	84 17	84 15	84 10	84 7
8	85 36	85 33	85 32	85 29	85 28	85 25	85 24	85 21	85 18
4	86 42	86 40	86 39	86 37	86 36	86 34	86 33	86 31	86 28
9	87 48	87 46	87 46	87 44	87 44	87 42	87 42	87 40	87 39
5	88 54	88 52	88 53	88 52	88 52	88 51	88 51	88 50	88 49
0	90 0	90 0	90 0	90 0	90 0	90 0	90 0	90 0	90 0

Tabula Aſcenſionum Rectarum.

♊ Latitudo Meridionalis. ♐ Latitudo Septentrionalis. Add. 180. gr.

♊ ♐	0		1		2		3		4		5		6		7		8		9	
Grad.	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′
0	57	48	58	2	58	15	58	29	58	42	58	55	59	7	59	20	59	32	59	43
1	58	51	59	4	59	17	59	30	59	43	59	55	60	7	60	20	60	32	60	42
2	59	53	60	6	60	19	60	31	60	44	60	56	61	8	61	20	61	32	61	42
3	60	56	61	9	61	21	61	33	61	46	61	57	62	9	62	11	62	32	62	41
4	61	59	62	11	62	23	62	35	62	48	62	58	63	9	63	21	63	32	63	41
5	63	3	63	14	63	15	63	37	63	50	63	59	64	10	64	21	64	32	64	41
6	64	6	64	17	64	28	64	39	64	52	65	1	65	11	65	22	65	32	65	40
7	65	9	65	20	65	31	65	41	65	54	66	2	66	12	66	22	66	32	66	40
8	66	13	66	23	66	34	66	44	66	56	67	4	67	13	67	23	67	33	67	40
9	67	17	67	27	67	37	67	46	67	58	68	6	68	15	68	24	68	33	68	40
10	68	21	68	30	68	40	68	49	68	59	69	7	69	16	69	25	69	33	69	40
11	69	25	69	34	69	43	69	52	70	1	70	9	70	17	70	26	70	34	70	40
12	70	29	70	38	70	46	70	55	71	3	71	11	71	19	71	27	71	35	71	41
13	71	34	71	42	71	49	71	58	72	5	72	13	72	21	72	28	72	36	72	41
14	72	38	72	46	72	51	73	1	73	8	73	15	73	23	73	30	73	37	73	42
15	73	43	73	50	73	57	74	4	74	11	74	18	74	25	74	32	74	38	74	43
16	74	47	74	54	75	1	75	7	75	14	75	20	75	27	75	33	75	39	75	44
17	75	52	75	58	76	5	76	11	76	17	76	23	76	29	76	35	76	40	76	45
18	76	57	77	3	77	9	77	15	77	20	77	26	77	31	77	37	77	42	77	46
19	78	2	78	7	78	13	78	18	78	23	78	28	78	33	78	38	78	43	78	47
20	79	7	79	12	79	17	79	21	79	26	79	31	79	35	79	40	79	44	79	48
21	80	12	80	17	80	21	80	25	80	29	80	34	80	38	80	42	80	46	80	49
22	81	17	81	21	81	25	81	28	81	32	81	36	81	40	81	44	81	47	81	50
23	82	22	82	25	82	29	82	32	82	35	82	39	82	42	82	46	82	48	82	51
24	83	28	83	30	83	33	83	36	83	39	83	42	83	45	83	48	83	50	83	52
25	84	33	84	35	84	37	84	40	84	42	84	45	84	47	84	50	84	51	84	53
26	85	38	85	40	85	41	85	44	85	45	85	48	85	49	85	52	85	53	85	54
27	86	44	86	45	86	46	86	48	86	49	86	51	86	51	86	54	86	55	86	55
28	87	49	87	50	87	50	87	51	87	52	87	54	87	54	87	56	87	56	87	57
29	88	55	88	55	88	55	88	56	88	56	88	57	88	57	88	58	88	58	88	58
30	90	0	90	0	90	0	90	0	90	0	90	0	90	0	90	0	90	0	90	0

Tabula Aſcenſionum Rectarum.

o Septentrionalis. ♑ Latitudo Meridionalis. Add. 180. gr.

	1	2	3	4	5	6	7	8	9
'	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '
0	90 0	90 0	90 0	9 0	90 0	90 0	90 0	90 0	90 0
5	91 6	91 7	91 7	91 7	91 8	91 9	91 9	91 10	91 11
1	92 12	92 14	91 14	92 15	92 16	92 18	92 18	92 20	92 22
6	93 18	93 20	93 21	93 23	93 24	93 26	93 27	93 29	93 32
2	94 24	94 27	94 28	94 30	94 31	94 35	54 36	94 39	94 42
7	95 30	95 31	95 35	95 38	95 40	95 43	95 45	95 49	95 52
2	96 36	96 39	96 41	96 45	96 48	96 51	96 54	96 59	97 2
8	97 42	57 45	97 49	97 52	97 56	98 0	98 3	98 8	98 12
3	98 47	98 51	98 55	99 0	99 4	99 8	99 11	99 17	99 21
8	99 52	99 57	100 1	100 7	100 12	100 16	100 21	100 26	100 31
3	100 58	101 3	101 8	101 14	101 19	101 24	101 30	101 35	101 40
8	102 4	102 9	102 15	102 21	102 26	102 32	102 38	102 44	102 50
3	103 9	103 25	103 21	103 27	103 33	103 40	103 46	103 53	103 59
8	104 14	104 21	104 27	104 34	104 41	104 48	104 55	105 2	105 9
3	105 19	105 27	105 33	105 41	105 48	105 56	106 2	106 11	106 18
7	106 24	106 33	106 39	106 47	106 55	107 3	107 11	107 19	107 27
2	107 29	107 38	107 45	107 53	108 2	108 11	108 19	108 28	108 36
6	108 34	108 43	108 51	108 59	109 9	109 18	109 27	109 36	109 45
1	109 39	109 48	109 57	110 5	110 15	110 25	110 3[illegible]	110 44	110 54
5	110 44	110 53	111 3	111 12	111 22	111 32	111 42	111 52	112 2
9	111 49	111 58	112 8	112 18	112 19	111 39	112 50	113 0	113 11
[illegible]	112 53	113 3	113 13	113 24	113 35	113 46	113 57	114 8	114 29
7	113 57	114 8	114 18	114 30	114 41	114 52	115 4	115 15	115 27
51	115 1	115 13	115 23	115 35	115 47	115 58	116 10	116 21	116 35
4	116 5	116 17	116 28	116 41	116 52	117 4	117 17	117 19	117 42
7	117 9	117 21	117 33	117 46	117 58	118 10	118 23	118 36	118 49
1	118 13	118 25	118 38	118 51	119 3	119 16	119 29	119 43	119 56
4	119 16	119 29	119 42	119 55	120 8	120 22	120 35	120 49	121 3
7	120 19	120 33	120 46	120 59	121 13	121 27	121 41	121 55	122 10
9	121 22	121 36	120 50	122 3	122 18	122 32	122 47	123 1	123 16
12	122 25	122 39	122 53	123 7	123 21	123 37	123 52	124 7	124 22

Tabula Aſcenſionum Rectarum.

♋ Latitudo Meridionalis. ♑ Latitudo Septentrionalis. Add. 180. gr.

♋♑	0	1	2	3	4	5	6	7	8	9
Grad.	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′
0	90 0	90 0	90 0	90 0	90 0	90 0	90 0	90 0	90 0	90 0
1	91 5	91 5	91 5	91 4	91 4	91 3	91 3	91 2	91 2	91 2
2	92 11	92 10	92 10	92 8	92 7	92 6	92 6	92 4	92 4	92 3
3	93 16	93 15	93 14	93 12	93 11	93 9	93 8	93 6	93 5	93 5
4	94 22	94 20	94 19	94 16	94 15	94 12	94 11	94 8	94 7	94 6
5	95 27	95 25	95 23	95 20	95 18	95 15	95 13	95 10	95 9	95 7
6	96 32	96 30	96 27	96 24	96 21	96 18	96 15	96 12	96 10	96 8
7	97 38	97 35	97 31	97 28	97 25	97 21	97 18	97 14	97 12	97 9
8	98 43	98 39	98 35	98 32	98 28	98 24	98 20	98 16	98 13	98 10
9	99 48	99 43	99 39	99 35	99 31	99 26	99 22	99 18	99 14	99 11
10	100 53	100 48	100 43	100 39	100 34	100 29	100 25	100 20	100 16	100 12
11	101 58	101 53	101 47	101 42	101 37	101 32	101 27	101 22	101 17	101 12
12	103 3	102 57	102 51	102 45	102 40	102 34	102 29	102 23	102 18	102 13
13	104 8	104 2	103 55	103 49	103 43	103 37	103 31	103 25	103 20	103 14
14	105 13	105 6	104 59	104 52	104 46	104 40	104 33	104 27	104 21	104 14
15	106 17	106 10	106 3	105 56	105 49	105 42	105 35	105 28	105 22	105 15
16	107 22	107 14	107 7	106 59	106 52	106 45	106 37	106 30	106 23	106 15
17	108 26	108 18	108 11	108 2	107 55	107 47	107 39	107 32	107 24	107 15
18	109 31	109 22	109 14	109 5	108 57	108 49	108 41	108 33	108 25	108 10
19	110 35	110 26	110 17	110 8	110 0	109 51	109 43	109 34	109 26	109 16
20	111 39	111 30	111 20	111 11	111 2	110 53	110 44	110 35	110 27	110 16
21	112 43	112 33	112 23	112 14	112 4	111 55	111 45	111 36	111 27	111 17
22	113 47	113 37	113 26	113 16	113 6	112 56	112 47	112 37	112 27	112 17
23	114 51	114 40	114 29	114 19	114 8	113 58	113 48	113 38	113 28	113 17
24	115 54	115 43	115 32	115 21	115 10	114 59	114 49	114 38	114 28	114 17
25	116 57	116 46	116 35	116 23	116 12	116 1	115 50	115 39	115 28	115 17
26	118 1	117 49	117 37	117 25	117 14	117 2	116 51	116 30	116 28	116 17
27	119 4	118 51	118 39	118 27	118 15	118 3	117 51	117 39	117 28	117 16
28	120 7	119 54	119 41	119 29	119 16	119 4	118 52	118 40	118 28	118 16
29	121 9	120 56	120 43	120 30	120 17	120 5	119 53	119 40	119 28	119 15
30	122 12	121 58	121 45	121 31	121 18	121 5	120 53	120 40	120 28	120 15

Tabula Aſcenſionum Rectarum.

o Septentrionalis. ≈ Latitudo Meridionalis. Add. 180. gr.

1	2.	3	4	5.	6	7	8	9
gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '
122 25	122 39	122 53	123 7	123 22	123 37	123 52	124 7	124 22
173 28	123 42	123 57	124 11	124 26	124 42	124 57	125 12	125 28
124 31	124 45	125 0	125 15	125 30	125 46	126 2	126 17	126 33
125 33	125 48	126 3	126 18	126 34	126 50	127 6	127 22	127 38
126 36	126 51	127 6	127 22	127 38	127 54	128 11	128 27	128 43
127 38	127 54	128 9	128 25	128 42	128 58	129 15	129 32	129 48
128 40	128 56	129 12	129 28	129 45	130 2	130 19	130 36	130 53
129 42	129 58	130 14	130 31	130 48	131 5	131 23	131 40	131 58
130 43	131 0	131 16	131 33	131 51	132 8	132 26	132 44	133 2
131 44	132 1	132 18	132 35	132 53	133 11	133 29	133 47	134 6
132 45	133 2	133 20	133 37	133 55	134 14	134 32	134 50	135 9
133 46	134 3	134 21	134 39	134 57	135 16	135 35	135 53	136 12
134 47	135 4	135 22	135 40	135 59	136 18	136 37	136 56	137 15
135 47	136 5	136 23	136 41	137 0	137 20	137 39	137 58	138 17
126 47	137 6	137 24	137 52	138 1	138 21	138 41	139 0	139 20
137 47	138 6	138 24	138 43	139 2	139 22	139 42	140 2	140 22
138 47	139 6	139 25	139 44	140 3	140 24	140 44	141 4	141 24
139 47	140 6	140 25	140 45	141 4	141 25	141 45	142 6	142 26
140 46	141 6	141 25	141 45	142 5	14226	142 46	143 7	143 27
141 46	142 6	142 25	142 45	143 6	143 27	143 47	144 8	144 28
142 45	143 5	143 25	143 45	144 6	144 27	144 48	145 9	145 29
143 44	144 4	144 24	144 45	145 6	145 27	145 48	146 9	146 30
144 43	145 3	145 24	145 45	146 6	146 27	146 48	147 10	147 31
145 42	146 2	146 23	145 44	147 5	147 27	147 48	148 10	148 31
146 40	147 1	147 22	147 43	148 4	148 26	148 48	149 10	149 31
147 39	148 0	148 21	148 42	149 3	149 25	149 47	150 10	150 31
148 37	148 58	149 19	149 41	150 2	150 24	150 46	151 9	151 31
149 35	149 56	150 17	150 39	151 1	151 23	151 45	152 8	152 30
150 33	150 54	151 15	151 37	151 59	152 22	152 44	153 7	153 29
151 30	151 52	152 13	152 35	152 57	153 20	153 43	154 6	154 28
152 27	152 49	153 11	153 33	153 55	154 18	154 41	155 4	155 27

Tabula Aſcenſionum Rectarum.

♌ Latitudo Meridionalis. ♒ Latitudo Septentrionalis. Add. 180. gr.

♍ ♓ Grad.	0 gr. ′	1 gr. ′	2 gr. ′	3 gr. ′	4 gr. ′	5 gr. ′	6 gr. ′	7 gr. ′	8 gr. ′	9 gr. ′
0	122 12	121 58	121 45	121 31	121 18	121 5	120 55	120 40	120 28	120 15
1	123 14	123 0	122 47	122 33	122 19	122 6	121 53	121 40	121 28	121 15
2	124 16	124 2	123 48	123 34	123 10	123 6	122 53	122 40	122 27	122 14
3	125 18	125 3	124 49	124 35	124 21	124 7	123 53	123 39	123 26	123 13
4	126 20	126 5	125 51	125 36	125 22	125 7	124 53	124 39	124 25	124 12
5	127 21	127 7	126 52	126 36	126 22	126 7	125 52	125 38	125 24	125 11
6	128 24	128 8	127 53	127 37	127 22	127 7	126 52	126 37	126 23	126 9
7	129 25	129 9	128 54	128 37	128 22	128 7	127 51	127 36	127 22	127 7
8	130 26	130 10	129 54	129 37	129 22	129 6	128 50	128 35	128 20	128 5
9	131 27	131 10	130 54	130 37	130 21	130 5	129 49	129 33	129 18	129 3
10	132 28	132 11	131 54	131 37	131 21	131 4	130 48	130 32	130 17	130 1
11	133 28	133 11	132 54	132 37	132 20	132 3	131 47	131 31	131 15	130 58
12	134 29	134 11	133 54	133 37	133 19	133 2	132 46	132 29	132 13	131 56
13	135 29	135 11	134 54	134 36	134 18	134 1	133 45	133 27	133 11	132 54
14	136 29	136 11	135 53	135 35	135 17	135 0	134 43	134 25	134 9	133 51
15	137 29	137 10	136 52	136 34	136 16	135 58	135 41	135 23	135 6	134 48
16	138 29	138 10	137 51	137 33	137 15	136 57	136 39	136 21	136 4	135 45
17	139 28	139 9	138 50	138 32	138 14	137 55	137 37	137 19	137 1	136 42
18	140 28	140 8	139 49	139 30	139 11	138 53	138 35	138 17	137 59	137 39
19	141 27	141 7	140 48	140 29	140 10	139 51	139 33	139 15	138 56	138 36
20	142 26	142 6	141 47	141 27	141 8	140 49	140 [illegible]	140 12	139 53	139 33
21	143 25	143 4	142 45	142 25	142 6	141 47	141 28	141 9	140 50	140 30
22	144 23	144 3	143 43	143 23	143 4	142 45	142 25	142 6	141 47	141 27
23	145 22	145 1	144 41	144 21	144 2	143 42	143 22	143 3	142 44	142 24
24	146 20	145 59	145 39	145 19	144 59	144 39	144 19	143 59	143 40	143 20
25	147 18	146 57	146 37	146 17	145 56	145 36	145 16	144 56	144 37	144 16
26	148 16	147 55	147 35	147 14	145 51	146 33	146 13	145 52	145 32	145 12
27	149 14	148 53	148 32	148 11	147 50	147 29	147 9	146 49	146 29	146 8
28	150 11	149 50	149 29	149 8	148 47	148 26	148 6	147 46	147 25	147 4
29	151 9	150 47	150 26	150 5	149 44	149 23	149 3	148 42	148 21	148 0
30	152 6	151 44	151 23	151 2	150 41	150 20	149 59	149 38	149 17	148 56

Tabula Aſcenſionum Rectarum.

udo Septentrionalis. × Latitudo Meridionalis. Add. 180. gr.

	1	2	3	4	5	6	7	8	9
'	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '
6	152 27	152 49	153 11	153 33	153 55	154 18	154 41	155 4	155 27
4	153 15	153 47	154 9	154 31	154 53	155 16	155 39	156 3	156 26
1	154 22	154 44	155 6	155 29	155 51	156 14	156 37	157 2	157 25
58	155 19	155 41	156 3	156 26	156 49	157 12	157 35	157 59	158 23
54	156 16	156 39	157 1	157 24	157 47	158 10	158 33	158 57	159 21
51	157 13	157 36	157 58	158 21	158 44	159 8	159 21	159 55	160 19
47	158 10	158 33	158 55	159 18	159 41	160 5	160 28	160 52	161 16
44	159 7	159 30	159 52	160 15	160 38	161 2	161 25	161 49	162 13
40	160 4	160 27	160 49	161 12	161 35	161 59	162 22	162 46	163 10
37	161 0	161 23	161 46	162 9	162 32	162 56	163 19	163 43	164 7
33	161 56	162 19	162 42	163 6	163 29	163 53	164 16	164 40	165 4
29	162 52	163 15	163 38	164 2	164 25	164 49	165 13	165 37	166 1
25	163 48	164 11	164 34	164 58	165 21	165 45	165 9	166 33	166 58
20	164 44	165 7	165 30	165 54	166 18	166 42	167 6	167 30	167 54
16	165 40	166 3	166 26	166 50	167 14	167 38	168 1	168 26	168 50
12	166 35	166 59	167 22	167 46	168 10	168 34	168 58	169 21	169 46
7	167 31	167 55	168 18	168 42	169 6	169 30	169 54	170 18	170 42
3	168 27	168 51	169 14	169 38	170 2	170 26	170 50	172 14	172 38
58	169 23	169 46	170 9	170 33	170 57	171 21	171 45	172 9	172 34
54	170 18	170 42	171 5	171 29	171 53	172 17	172 41	173 5	173 30
49	171 13	171 37	172 1	172 25	172 49	173 13	173 37	174 1	174 25
44	172 8	172 32	172 56	173 20	173 44	174 8	174 32	174 56	175 21
39	173 3	173 27	173 51	174 15	174 39	175 3	175 17	175 51	176 16
35	173 58	174 22	174 46	175 10	175 34	175 58	176 22	176 46	177 12
30	174 53	175 17	175 41	176 5	176 29	176 53	177 17	177 41	178 7
25	175 48	176 12	176 36	177 0	177 24	177 48	178 12	178 36	179 2
20	176 43	177 7	177 31	177 55	178 19	178 43	179 7	179 31	179 57
15	177 38	178 2	178 26	178 50	179 14	179 38	180 2	180 26	180 52
10	178 33	178 57	179 21	179 45	180 9	180 33	180 57	181 22	181 47
5	179 28	179 52	180 16	180 40	181 4	181 28	181 52	182 17	182 42
0	180 23	180 47	181 11	181 35	181 59	182 23	182 47	183 12	183 37

Tabula Aſcenſionum Rectarum.

♍ Latitudo Septentrionalis. ♓ Latitudo Meridionalis. Add. 180. gr.

♍ ♓	0	1	2	3	4	5	6	7	8	9
Grad.	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '
0	152 6	151 44	151 23	151 2	150 41	150 20	149 59	149 38	149 17	148 56
2	153 4	152 41	152 20	151 59	151 38	151 16	150 55	150 34	150 13	149 52
2	154 1	153 38	153 17	152 55	152 34	152 12	151 51	151 30	151 9	150 48
3	154 58	154 35	154 13	153 51	153 30	153 8	152 47	152 25	152 4	151 43
4	155 54	155 32	155 10	154 48	154 26	154 4	153 43	153 21	153 0	152 38
5	156 51	156 29	156 7	155 44	155 22	155 0	154 39	154 17	153 55	153 33
6	157 48	157 25	157 3	156 40	156 18	155 56	155 34	155 12	154 50	154 28
7	158 44	158 22	157 59	157 36	157 14	156 52	156 30	156 8	155 46	155 23
8	159 40	159 18	158 55	158 32	158 10	157 48	157 26	157 3	156 41	156 18
9	160 31	160 14	159 51	159 28	159 6	158 43	158 21	157 58	157 36	157 13
10	161 33	161 10	160 47	160 24	160 2	159 39	159 17	158 54	158 31	158 8
11	162 29	162 6	161 43	161 20	160 58	160 35	160 12	159 49	159 26	159 3
12	163 25	163 2	162 39	162 16	161 53	161 30	161 7	160 44	160 21	159 58
13	164 20	163 58	163 35	163 12	162 49	162 25	162 2	161 39	161 16	160 53
14	165 16	164 53	164 30	164 7	163 44	163 20	162 57	162 34	162 11	161 48
15	166 12	165 48	165 25	165 2	164 39	164 15	163 52	163 29	163 6	162 43
16	167 7	166 44	166 21	165 57	165 34	165 10	164 47	164 24	164 1	163 38
17	168 3	167 40	167 17	166 52	166 29	166 5	165 42	165 19	164 56	164 33
18	168 58	168 35	168 12	167 47	167 24	167 0	166 37	166 13	165 51	165 28
19	169 54	169 31	169 7	168 43	168 19	167 55	167 32	167 8	166 46	166 13
20	170 49	170 26	170 2	169 38	169 14	168 50	168 27	168 3	167 41	167 17
21	171 44	171 21	170 57	170 33	170 9	169 45	169 22	168 58	168 35	168 12
22	172 39	172 16	171 52	171 28	171 4	170 40	170 17	169 53	169 30	169 7
23	173 35	173 11	172 47	172 23	171 59	171 35	171 12	170 48	170 25	170 1
24	174 30	174 6	173 42	173 18	172 54	172 30	172 7	171 43	171 20	170 56
25	175 25	175 2	174 38	174 14	173 50	173 26	173 2	172 38	172 15	171 51
26	176 20	175 57	174 35	175 9	174 45	174 21	173 57	173 33	173 10	172 45
27	177 15	176 52	176 30	176 4	175 40	175 16	174 52	174 28	174 4	173 40
28	178 10	177 47	177 23	176 59	176 35	176 11	175 47	175 23	174 59	174 34
29	179 5	178 42	178 18	177 54	177 30	177 6	176 42	176 18	175 54	175 29
30	180 0	179 37	179 13	178 49	178 25	178 1	177 37	177 13	176 48	176 24

Tabula Differentiarum Aſcenſionalium.

2	3		4		5		6		7		8		9		10	
′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′
2	0	3	0	4	0	5	0	6	0	7	0	8	0	9	0	11
4	0	6	0	8	0	10	0	13	0	15	0	17	0	19	0	21
6	0	9	0	17	0	16	0	19	0	22	0	25	0	29	0	32
8	0	13	0	17	0	21	0	25	0	30	0	34	0	38	0	42
10	0	16	0	21	0	26	0	32	0	37	0	42	0	48	0	53
13	0	19	0	25	0	32	0	38	0	41	0	51	0	57	1	4
15	0	22	0	30	0	37	0	44	0	52	0	59	1	7	1	14
17	0	25	0	34	0	42	0	51	0	59	1	8	1	16	1	25
19	0	20	0	38	0	48	0	57	1	7	1	16	1	26	1	36
21	0	32	0	42	0	53	1	4	1	14	1	25	1	36	1	47
23	0	35	0	47	0	58	1	10	1	22	1	34	1	46	1	58
25	0	38	0	51	1	4	1	17	1	30	1	43	1	56	2	9
28	0	42	0	56	1	9	1	23	1	37	1	52	2	6	2	20
30	0	45	1	0	1	15	1	30	1	45	2	2	2	16	2	31
32	0	48	1	4	1	21	1	37	1	53	2	10	2	26	2	42
34	0	52	1	9	1	26	1	44	2	1	2	19	2	36	2	54
37	0	55	1	14	1	32	1	50	2	9	2	28	2	47	3	5
39	0	59	1	18	1	38	1	57	2	17	2	37	2	57	3	17
41	1	2	1	23	1	44	2	4	2	25	2	46	3	8	3	29
44	1	6	1	27	1	49	2	12	2	34	2	56	3	18	3	41
46	1	9	1	32	1	55	2	19	2	41	3	6	3	29	3	53
49	1	13	1	37	2	2	2	26	2	50	3	15	3	40	4	5
51	1	17	1	42	2	8	2	33	2	59	3	25	3	51	4	18
53	1	20	1	47	2	14	2	41	3	8	3	35	4	3	4	30
56	1	24	1	52	2	20	2	49	3	17	3	45	4	14	4	43
59	1	28	1	57	2	27	2	56	3	26	3	56	4	26	4	56
1	1	32	2	3	2	33	3	4	3	35	4	6	4	38	5	9
4	1	36	2	8	2	40	3	12	3	45	4	17	4	50	5	23
7	1	40	2	13	2	47	3	20	3	54	4	28	5	2	5	37
9	1	44	2	19	2	54	3	28	4	4	4	39	5	15	5	51
12	1	48	2	24	3	1	3	37	4	14	4	51	5	28	6	5
15	1	53	2	30	3	8	3	46	4	24	5	2	5	41	6	20

Tabula Differentiarum Aſcenſionalium.

Gradus Declinationum.

Elevatio Poli.	11		12		13		14		15		16		17		18		19		20	
Grad.	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'
1	0	12	0	13	0	14	0	15	0	16	0	17	0	18	0	19	0	21	0	22
2	0	23	0	25	0	28	0	30	0	32	0	34	0	37	0	39	0	42	0	44
3	0	35	0	38	0	42	0	45	0	48	0	52	0	55	0	59	1	2	1	6
4	0	47	0	51	0	56	1	0	1	4	1	9	1	14	1	18	1	23	1	27
5	0	58	1	4	1	9	1	15	1	21	1	26	1	32	1	38	1	44	1	49
6	1	10	1	17	1	23	1	30	1	37	1	44	1	50	1	57	2	4	2	12
7	1	22	1	30	1	37	1	45	1	53	2	1	2	9	2	17	2	25	2	34
8	1	35	1	43	1	52	2	0	2	9	2	19	2	28	2	37	2	46	2	56
9	1	46	1	56	2	6	2	16	2	26	2	36	2	47	2	57	3	8	3	18
10	1	58	2	9	2	20	2	31	2	42	2	54	3	5	3	17	3	20	3	41
11	2	10	2	22	2	34	2	47	2	59	3	12	3	24	3	37	3	50	4	3
12	2	22	2	35	2	49	3	2	3	16	3	30	3	44	3	58	4	12	4	26
13	2	34	2	49	3	3	3	18	3	33	3	48	4	3	4	18	4	34	4	49
14	2	47	3	2	3	18	3	34	3	50	4	6	4	22	4	39	4	56	5	12
15	2	59	3	16	3	33	3	50	4	7	4	24	4	42	5	0	5	18	5	36
16	3	12	3	30	3	48	4	6	4	24	4	43	5	2	5	21	5	40	5	59
17	3	24	3	44	4	3	4	22	4	42	5	2	5	22	5	42	6	2	6	23
18	3	37	3	58	4	18	4	39	5	0	5	21	5	42	6	4	6	25	6	47
19	3	50	4	12	4	34	4	55	5	18	5	40	6	3	6	26	6	49	7	12
20	4	3	4	26	4	49	5	12	5	36	5	59	6	24	6	48	7	12	7	37
21	4	17	4	41	5	5	5	30	5	54	6	19	6	45	7	10	7	36	8	2
22	4	30	4	56	5	21	5	47	6	13	6	39	7	6	7	33	8	0	8	27
23	4	44	5	11	5	37	6	5	6	32	6	59	7	27	7	56	8	24	8	53
24	4	58	5	26	5	54	6	23	6	51	7	20	7	40	8	19	8	49	9	19
25	5	12	5	41	6	11	6	41	7	11	7	41	8	12	8	43	9	14	9	46
26	5	26	5	57	6	28	6	59	7	31	8	2	8	35	9	7	9	40	10	14
27	5	41	6	13	6	45	7	18	7	51	8	24	8	58	9	32	10	6	10	41
28	5	56	6	29	7	3	7	37	8	11	8	46	9	21	9	57	10	33	11	9
29	6	11	6	46	7	21	7	57	8	32	9	9	9	45	10	23	11	0	11	38
30	6	27	7	3	7	40	8	17	8	54	9	32	10	10	10	49	11	28	12	8
31	6	42	7	20	7	59	8	37	9	16	9	55	10	35	11	15	11	56	12	38
32	6	59	7	38	8	18	8	58	9	38	10	19	11	1	11	43	12	25	13	9

Tabula Differentiarum Aſcenſionalium.

22		23		24		25		26		27		28		29		30	
	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'
	24	0	25	0	27	0	28	0	29	0	31	0	32	0	33	0	35
	49	0	51	0	53	0	56	0	59	1	3	1	4	1	7	1	9
	13	1	17	1	20	1	24	1	28	1	32	1	36	1	40	1	44
	37	1	42	1	47	1	52	1	57	2	3	2	8	2	13	2	19
	2	2	8	2	14	2	20	2	27	2	33	2	40	2	47	2	54
	26	2	33	2	41	2	49	2	56	3	4	3	12	3	20	3	29
	51	2	59	3	8	3	17	3	26	3	35	3	45	3	54	4	4
	15	3	25	3	35	3	45	3	56	4	6	4	17	4	28	4	39
	40	3	51	4	3	4	14	4	26	4	38	4	50	5	2	5	15
	5	4	18	4	30	4	53	4	56	5	9	5	23	5	36	5	51
	30	4	44	4	58	5	12	5	26	5	41	5	56	6	11	6	27
	56	5	11	5	26	5	41	5	57	6	13	6	29	6	46	7	3
	21	5	38	5	54	6	11	6	28	6	45	7	3	7	21	7	40
	47	6	5	6	22	6	41	6	59	7	18	7	37	7	56	8	17
	13	6	32	6	51	7	11	7	31	7	51	8	11	8	32	8	54
	39	6	59	7	20	7	41	8	3	8	24	8	46	9	8	9	32
	6	7	27	7	49	8	12	8	35	8	58	9	21	9	45	10	10
	33	7	56	8	19	8	43	9	7	9	32	9	56	10	23	10	49
	0	8	24	8	49	9	14	9	40	10	6	10	33	11	0	11	28
	27	8	53	9	19	9	46	10	14	10	41	11	9	11	38	12	8
	55	9	23	9	50	10	19	10	47	11	17	11	46	12	17	12	48
	24	9	53	10	22	10	52	11	22	11	53	12	24	12	56	13	29
	53	10	23	10	54	11	25	11	57	12	29	13	3	13	37	14	11
0	22	10	54	11	26	11	59	12	33	13	7	13	42	14	17	14	54
0	52	11	25	11	59	12	34	13	9	13	45	14	21	14	59	15	37
1	22	11	57	12	33	13	9	13	46	14	24	15	2	15	41	16	21
1	53	12	29	13	7	13	45	14	23	15	3	15	43	16	24	17	6
2	24	13	3	13	42	14	21	15	2	15	43	16	25	17	8	17	53
2	56	13	37	14	18	14	59	15	41	16	24	17	8	17	54	18	40
13	29	14	11	14	44	15	37	16	21	17	6	17	53	18	40	19	28
14	3	14	47	15	31	16	16	17	2	17	50	18	38	19	27	20	18
14	37	15	23	16	9	16	56	17	45	18	34	19	24	20	16	21	9

Tabula Differentiarum Aſcenſionalium.

Elevatio Poli. Grad.	31 gr. ′	32 gr. ′	33 gr. ′	34 gr. ′	35 gr. ′	36 gr. ′	37 gr. ′	38 gr. ′	39 gr. ′	40 gr. ′
1	0 36	0 37	0 39	0 40	0 42	0 44	0 45	0 47	0 49	0 50
2	1 12	1 15	1 18	1 21	1 24	1 27	1 31	1 34	1 37	1 41
3	1 48	1 53	1 57	2 2	2 6	2 11	2 16	2 21	2 26	2 31
4	2 24	2 30	2 35	2 42	2 48	2 55	3 1	3 8	3 15	3 22
5	3 1	3 8	3 15	3 23	3 31	3 39	3 47	3 55	4 4	4 13
6	3 37	3 46	3 55	4 3	4 13	4 23	4 33	4 43	4 53	5 4
7	4 14	4 24	4 34	4 45	4 50	5 7	5 19	5 30	5 42	5 55
8	4 51	5 2	5 14	5 26	5 39	5 52	6 5	6 18	6 32	6 46
9	5 28	5 41	5 54	6 8	6 22	6 36	6 51	7 6	7 22	7 38
10	0 5	6 20	6 35	6 50	7 6	7 22	7 38	7 55	8 13	8 30
11	6 42	6 59	7 15	7 32	7 49	8 7	8 25	8 44	9 3	9 23
12	7 20	7 38	7 56	8 15	8 34	8 53	9 13	9 34	9 55	10 16
13	7 58	8 18	8 37	8 58	9 18	9 39	10 1	10 24	10 46	11 10
14	8 37	8 58	9 19	9 41	10 3	10 26	10 50	11 14	11 39	12 5
15	9 16	9 38	10 1	10 25	10 49	11 14	11 39	12 5	12 32	13 0
16	9 55	10 19	10 44	11 9	11 35	12 2	11 29	12 57	13 26	13 55
17	10 35	11 1	11 27	11 54	12 22	12 50	13 19	13 49	14 20	14 52
18	11 16	11 43	12 11	12 40	13 9	13 39	14 10	14 42	15 15	15 49
19	11 56	12 25	12 55	13 26	13 57	14 29	15 2	15 36	15 11	10 48
20	12 38	13 9	13 40	14 13	14 46	15 20	15 55	16 31	17 9	17 47
21	13 20	13 53	14 26	15 0	15 36	16 12	16 49	17 27	18 7	18 47
22	14 3	14 37	15 13	15 49	16 27	17 5	17 44	18 24	19 0	19 49
23	14 47	15 23	16 0	16 38	17 17	17 58	18 39	19 22	20 6	20 52
24	15 31	16 9	16 48	17 29	18 10	18 52	19 36	20 21	21 8	21 55
25	16 10	16 56	17 38	18 20	19 3	19 48	20 34	21 21	22 11	23 1
26	17 2	17 45	18 28	19 12	19 58	20 45	21 34	22 24	23 16	24 10
27	17 50	18 34	19 19	20 6	20 54	21 44	22 35	23 28	24 22	25 19
28	18 38	19 24	20 12	21 1	21 51	22 44	23 37	24 30	25 30	26 30
29	19 27	20 16	21 6	21 57	22 50	23 45	24 41	25 40	26 40	27 43
30	20 18	21 0	22 1	22 55	22 51	24 48	25 47	26 40	27 [illegible]	28 59
31	21 10	22 3	22 58	23 55	24 53	25 53	26 55	28 0	29 7	30 17
32	22 3	22 59	23 56	24 56	25 57	27 0	28 5	29 13	30 24	31 [illegible]

Gradus Declinationum

Tabula Aſcenſionalium Differentiarum.

1	42	43	44	45	46	47	48	49	50
′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′
52	0 54	0 56	0 58	1 0	1 2	1 4	1 7	1 9	1 12
44	1 48	1 52	1 56	2 0	2 4	2 9	2 13	2 18	2 23
37	2 42	2 48	2 54	3 0	3 7	3 13	3 20	3 27	3 35
29	3 37	3 44	3 52	4 1	4 9	4 18	4 27	4 37	4 47
22	4 31	4 41	4 51	5 1	5 12	5 23	5 35	5 47	5 59
15	5 26	5 37	5 50	6 2	6 15	6 28	6 42	6 57	7 12
8	6 21	6 34	6 49	7 3	7 18	7 34	7 50	8 7	8 25
1	7 16	7 32	7 48	8 5	8 22	8 40	8 59	9 18	9 38
55	8 12	8 30	8 48	9 7	9 26	9 47	10 8	10 30	10 53
49	9 8	9 28	9 48	10 9	10 31	10 54	11 18	11 42	12 8
44	10 5	10 27	10 49	11 12	11 37	12 1	12 28	12 55	13 24
39	11 2	11 26	11 51	12 16	12 43	13 11	13 39	14 9	14 40
35	12 0	12 26	12 53	13 21	13 50	14 20	14 51	15 24	15 58
31	12 58	13 27	13 56	14 26	14 58	15 30	16 5	16 40	17 17
28	13 58	14 28	15 0	15 32	16 7	16 42	17 19	17 57	18 37
26	14 58	15 31	16 5	16 40	17 16	17 54	18 34	19 16	19 59
25	15 59	16 34	17 10	17 48	18 27	19 8	19 51	20 36	21 22
24	17 0	17 38	18 17	18 58	19 40	20 23	21 9	21 57	22 47
25	18 3	18 44	19 25	20 9	20 53	21 40	22 29	23 10	24 14
27	19 7	19 51	20 35	21 21	22 8	22 58	23 51	24 45	25 42
30	20 13	20 59	21 46	22 34	23 25	24 10	25 14	26 12	27 14
34	21 20	22 8	22 58	23 50	24 44	25 41	26 40	27 42	28 47
39	22 28	23 19	24 12	25 7	26 5	27 5	28 8	29 14	30 23
46	23 38	24 32	25 28	26 26	27 27	28 31	29 38	30 48	32 3
55	24 50	25 47	26 46	27 48	28 52	30 0	31 12	32 26	33 46
5 5	26 3	27 3	28 6	29 11	30 20	31 32	32 48	34 8	35 32
6 17	27 18	28 22	29 29	30 38	31 51	33 7	34 28	35 53	37 23
7 31	28 36	29 44	30 54	32 7	33 25	34 46	36 12	37 43	39 19
8 48	29 56	31 8	32 22	33 40	35 2	36 28	38 0	39 37	41 21
7	31 19	32 35	33 53	35 16	36 43	38 15	39 53	41 37	43 29
1 29	32 45	34 5	35 28	36 56	38 29	40 7	41 52	43 44	45 44
2 54	34 14	35 38	37 7	38 40	40 19	42 4	43 57	45 57	48 8

Tabula Differentiarum Aſcenſionalium.

Gradus Declinationum.

Elevatio Poli.	51		52		53		54		55		56		57		58		59		60	
Grad.	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'
1	1	14	1	17	1	20	1	23	1	26	1	29	1	32	1	36	1	40	1	44
2	2	28	2	34	2	39	2	45	2	52	2	58	3	5	3	12	3	20	3	28
3	3	43	3	51	3	59	4	8	4	18	4	27	4	28	4	40	5	0	5	13
4	4	57	5	8	5	19	5	31	5	44	5	57	6	11	6	15	6	41	6	57
5	6	12	6	26	6	40	6	55	7	11	7	27	7	44	8	3	8	22	8	43
6	7	27	7	44	8	1	8	19	8	38	8	58	9	19	9	41	10	4	10	28
7	8	43	9	2	9	23	9	44	10	6	10	29	10	54	11	20	11	47	12	17
8	10	0	10	22	10	45	11	9	11	35	12	1	12	30	13	0	13	31	14	5
9	11	17	11	42	12	8	12	35	13	4	13	35	14	7	14	41	15	17	15	53
10	12	35	13	3	13	31	14	3	14	35	15	9	15	45	16	23	17	4	17	47
11	13	53	14	24	14	57	15	31	16	7	16	45	17	25	18	8	18	53	19	41
12	15	13	15	47	16	22	17	0	17	40	18	22	19	6	19	53	20	43	21	36
13	16	34	17	11	17	50	18	32	19	15	20	1	20	50	21	41	22	36	23	34
14	17	56	18	37	19	19	20	4	20	52	21	42	22	35	23	31	24	31	25	35
15	19	19	20	4	20	50	21	38	22	30	23	24	24	22	25	23	26	29	27	39
16	20	44	21	32	22	22	23	15	24	10	25	9	26	12	27	19	28	30	29	47
17	22	11	23	2	23	56	24	53	25	53	26	57	28	5	29	18	30	35	31	59
18	23	50	24	34	25	35	26	34	27	39	28	48	30	1	31	20	32	44	34	19
19	25	10	26	9	27	11	28	17	29	27	30	41	32	1	33	26	34	58	36	37
20	26	43	27	46	28	53	30	4	31	19	32	39	34	5	35	37	37	12	39	5
21	28	18	29	26	30	37	31	54	33	15	34	41	36	14	37	54	39	42	41	40
22	29	56	31	8	32	25	33	47	35	14	36	48	30	28	40	17	42	15	44	25
23	31	43	32	54	34	17	35	45	37	19	39	0	40	49	42	47	44	57	47	20
24	33	32	34	44	36	13	37	48	39	29	41	18	43	19	45	26	47	49	50	27
25	35	21	36	39	38	14	39	59	41	45	43	48	45	54	48	16	50	54	53	52
26	37	10	38	38	40	20	41	10	44	9	46	18	48	41	51	19	54	16	57	39
27	39	0	40	42	42	32	44	32	46	41	49	4	51	41	54	38	58	1	61	57
28	41	2	42	53	44	53	47	2	49	24	52	1	54	58	59	19	62	14	67	4
29	43	12	45	12	47	21	49	44	52	20	55	16	58	36	63	31	67	18	73	46
30	45	29	47	39	50	1	52	37	55	32	58	52	62	45	67	31	73	55	90	0
31	47	54	50	16	52	53	55	48	59	6	62	58	67	42	74	4	90	0		
32	50	30	53	7	56	1	59	19	63	10	67	33	74	12	90	0				

Tabula Aſcenſionum obliquarum Eclipticæ.

1		2		3		4		5		6		7		8		9		10	
.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	38	3	36	3	35	3	33	3	32	3	29	3	28	3	26	3	24	3	23
	17	7	14	7	10	7	7	7	4	7	0	6	57	6	53	6	50	6	47
	57	10	52	10	46	10	41	10	26	10	52	10	26	10	21	10	16	10	11
4	37	14	30	14	23	14	17	14	10	14	4	13	57	13	50	13	43	13	36
8	19	18	10	18	2	17	54	17	46	17	37	17	19	17	20	17	12	17	3
	3	21	52	21	42	21	33	21	23	21	13	21	3	20	52	10	43	20	32
	48	25	37	25	25	25	14	25	3	24	50	24	39	24	28	24	16	24	4
9	36	29	23	29	10	28	57	28	44	28	30	28	18	28	4	27	51	27	38
3	26	33	11	32	57	32	43	32	27	32	13	31	59	31	43	31	29	31	14
7	19	37	3	36	47	36	31	36	15	35	59	35	43	35	27	35	11	34	54
	14	40	57	40	39	40	22	40	5	29	47	39	30	39	12	38	55	38	37
5	13	44	54	44	36	44	17	43	59	43	40	43	21	43	2	42	43	42	24
9	15	48	54	48	35	48	15	47	55	47	35	47	15	46	55	46	34	46	14
3	18	52	57	52	37	52	16	51	54	51	33	51	12	50	50	50	29	50	7
7	26	57	4	56	42	56	20	55	57	55	35	55	12	54	50	54	28	54	5
1	37	61	13	60	50	60	28	60	4	59	41	59	17	58	54	58	31	58	7
5	50	65	25	65	2	64	38	64	13	63	50	63	25	63	2	62	37	62	12
0	5	69	40	69	16	68	51	68	26	68	1	67	36	67	12	66	47	66	21
4	22	73	57	73	32	73	7	72	41	72	16	71	51	71	25	70	59	70	32
8	41	78	16	77	50	77	24	76	59	76	33	76	7	75	41	75	13	74	48
3	1	82	36	82	10	81	44	81	18	80	52	80	25	79	59	79	32	79	5
7	23	86	57	86	31	86	4	85	38	85	12	84	45	84	19	83	52	83	25
1	45	91	19	90	53	90	27	90	1	89	35	89	7	88	41	88	14	87	47
6	7	95	41	95	15	94	48	94	23	93	57	93	29	93	3	92	36	92	10
00	27	100	2	99	36	99	10	98	45	98	19	97	53	97	27	97	0	96	34
04	47	104	22	103	57	103	32	103	6	102	41	102	16	101	50	101	24	100	57
09	6	108	41	108	17	107	52	107	27	107	2	106	38	106	13	105	48	105	22
13	23	112	58	112	35	112	11	111	47	111	23	110	58	110	35	110	10	109	46
17	38	117	14	116	51	116	28	116	5	115	42	115	18	114	55	114	32	114	8
21	50	121	28	111	6	120	44	120	21	119	59	119	36	119	14	118	52	118	29
25	59	125	38	125	18	124	56	124	25	124	14	123	52	123	31	122	10	121	48
130	6	129	45	129	26	129	6	128	46	128	26	128	6	127	45	127	25	127	4
34	10	133	51	133	32	133	14	132	55	132	36	132	18	131	58	131	39	131	20
38	11	137	54	137	37	137	19	137	2	136	45	136	27	136	9	135	52	135	34
42	9	141	53	141	37	141	21	141	5	140	49	140	23	140	17	140	1	139	45
146	5	145	51	145	37	145	22	145	7	144	58	144	38	144	23	144	9	143	54
149	58	149	46	149	32	149	19	149	6	148	52	148	40	148	27	148	13	148	1
153	49	153	38	153	26	153	15	153	3	152	51	152	40	152	28	152	17	152	5
157	38	157	18	157	18	157	8	156	59	156	48	156	20	156	18	156	18	156	8
161	25	161	16	161	8	161	0	160	52	160	43	160	35	160	26	160	18	160	9
165	10	165	4	164	56	164	50	164	44	164	37	164	30	164	23	164	16	164	9
168	54	168	49	168	43	168	38	168	34	168	29	168	24	168	18	168	13	168	8
172	37	172	33	171	30	172	25	172	22	172	20	172	16	172	13	172	9	171	6
76	19	176	17	176	16	176	14	176	12	176	10	176	8	176	7	176	5	176	4
80	0	180	0	180	0	180	0	180	0	180	0	180	0	180	0	180	0	180	0

Tabula Aſcenſionum obliquarum Ecliptice.

Elevatio Poli.	1	2	3	4	5	6	7	8	9	10
S. G.	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '
♎ 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0
4	183 41	183 43	183 44	183 46	183 48	183 50	183 52	183 53	183 55	183 56
8	187 23	187 17	187 30	187 34	187 36	187 40	187 44	187 47	187 51	187 54
12	191 6	191 11	191 17	191 21	191 26	191 31	191 36	191 42	191 47	191 52
16	194 50	194 55	195 4	195 10	195 16	195 23	195 30	195 37	195 44	195 51
20	198 31	198 44	198 52	199 0	199 8	199 17	199 25	199 34	199 42	199 51
24	202 22	202 32	202 42	202 52	203 1	203 12	203 21	203 32	203 42	203 52
28	206 11	106 22	206 34	206 45	206 57	207 9	207 20	207 32	207 43	207 55
♏ 2	210 2	210 14	210 28	110 41	210 54	211 8	211 20	211 33	211 47	211 59
6	213 55	214 9	214 23	214 38	214 53	215 9	215 22	215 37	215 51	216 6
10	217 51	218 7	218 23	218 39	218 55	219 11	219 27	219 43	219 59	220 15
14	221 49	222 6	222 23	222 41	212 58	223 15	223 33	223 51	224 8	224 26
18	225 50	226 9	226 28	226 46	227 5	227 24	227 42	228 2	228 21	228 40
22	229 54	230 15	230 34	230 54	231 14	231 34	231 54	232 14	232 31	232 56
26	234 1	234 22	234 41	235 4	235 25	235 46	236 8	236 29	236 50	237 12
♐ 0	238 10	238 32	238 54	239 16	239 39	240 1	240 24	240 46	241 8	241 31
4	242 22	242 46	243 9	243 31	243 55	244 18	244 42	245 5	245 28	245 52
8	246 37	247 2	247 25	247 49	248 13	248 37	149 2	249 25	249 50	250 14
12	250 54	251 19	251 43	252 8	252 33	252 57	253 22	253 47	254 12	254 38
16	254 13	255 38	256 3	256 28	256 54	257 19	257 44	258 10	258 36	259 2
20	259 33	259 58	260 24	260 50	161 15	261 41	262 7	262 33	263 0	263 26
24	263 53	264 19	264 45	265 12	265 37	266 3	266 31	266 57	267 24	267 50
28	268 15	268 41	269 7	269 33	269 59	270 25	270 53	271 19	271 46	272 13
♑ 2	272 37	273 2	273 19	273 56	274 22	274 48	275 15	275 41	276 8	276 35
6	276 59	277 24	277 50	278 16	278 42	279 8	279 35	280 1	280 28	280 55
10	281 19	281 44	282 10	282 36	283 1	283 27	283 53	284 19	284 47	285 12
14	285 38	186 3	286 28	286 54	287 19	287 44	288 9	288 35	289 1	289 18
18	289 55	290 20	290 44	291 9	291 34	291 59	292 24	292 48	293 13	293 39
22	294 10	294 35	294 58	295 22	295 47	256 10	296 35	296 58	297 23	297 48
26	298 23	298 47	299 10	299 32	299 56	300 19	300 43	301 6	301 29	301 53
♒ 0	302 34	302 56	303 18	303 41	304 3	304 25	304 48	305 10	305 32	305 55
4	306 41	307 3	307 23	207 44	308 0	308 27	308 48	309 10	309 31	309 53
8	310 41	311 6	311 25	311 45	312 5	312 25	312 45	313 5	313 26	313 46
12	314 47	315 6	315 24	315 43	316 1	316 20	316 39	316 58	317 17	317 36
16	318 46	319 3	319 21	319 38	319 55	320 13	320 30	320 48	321 5	321 23
20	322 41	322 57	323 13	323 29	323 44	324 1	324 17	324 33	324 49	325 6
24	326 34	326 49	327 3	327 17	327 31	327 47	328 1	328 17	328 31	328 46
28	330 24	330 37	330 50	331 3	331 16	331 30	331 42	331 56	332 9	332 22
♓ 2	334 12	334 23	334 35	334 46	334 57	335 10	335 21	335 32	335 44	335 56
6	337 57	338 8	338 18	338 27	338 27	338 47	338 57	339 8	339 17	339 28
10	341 41	341 50	341 58	342 6	342 14	342 13	342 31	342 40	342 48	342 57
14	345 13	345 30	345 37	345 53	345 50	345 56	346 3	346 10	346 17	346 24
18	349 3	349 8	349 14	349 19	349 24	349 28	349 34	349 39	349 44	349 49
22	352 43	352 46	352 50	352 53	352 56	353 0	353 3	353 7	353 10	353 13
26	356 22	356 24	356 25	356 27	356 28	350 31	356 32	356 34	356 36	355 37
30	360 0	360 0	360 0	360 0	360 0	360 0	360 0	360 0	360 0	360 0

Tabula Aſcenſionum obliquarum Eclipticæ.

11		12		13		14		15		16		17		18		19		20	
.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	21	3	20	3	17	3	16	3	14	3	12	3	10	3	8	3	7	3	5
	43	6	40	6	36	6	33	6	29	6	26	6	22	6	18	6	15	6	11
0	6	10	0	9	56	9	50	9	45	9	40	9	34	9	28	9	23	9	27
3	30	13	22	13	16	13	9	13	1	12	55	12	47	12	40	12	32	12	25
5	55	16	46	16	38	16	29	16	10	16	11	16	2	15	53	15	44	15	35
0	23	20	12	20	2	19	51	19	40	19	30	19	19	19	9	18	58	18	47
3	51	23	40	23	28	23	16	22	4	22	51	22	39	22	27	21	24	21	1
7	24	27	11	26	57	26	43	26	29	26	15	26	2	25	47	25	33	25	28
0	59	30	44	30	28	30	13	29	58	29	42	19	27	29	10	28	55	28	39
4	38	34	21	34	4	33	48	33	31	33	13	32	56	32	38	32	21	32	3
8	19	38	1	27	43	37	24	37	6	36	47	36	28	36	9	35	50	35	31
2	5	41	45	41	16	41	6	40	46	40	26	40	5	39	44	39	24	39	3
5	54	45	32	45	12	44	50	44	29	44	8	43	46	43	24	43	2	42	40
9	46	49	23	49	1	48	39	48	17	47	54	47	31	47	7	46	44	46	20
3	42	53	19	52	55	52	32	52	9	51	45	51	20	50	56	50	31	50	6
7	43	57	19	56	55	56	30	56	5	55	41	55	15	54	50	54	24	53	58
1	48	61	22	60	58	60	32	60	6	59	40	59	15	58	48	58	21	57	54
5	56	65	30	65	4	64	38	64	12	63	45	63	17	62	50	62	23	61	55
0	7	69	41	69	14	68	48	68	21	67	53	67	25	66	57	66	29	66	1
4	21	73	55	73	28	73	0	72	33	72	5	71	37	71	9	70	40	70	12
8	38	78	11	77	44	77	16	76	49	76	21	75	53	75	14	74	55	74	25
2	58	82	31	82	4	81	36	81	8	80	40	80	12	79	43	79	13	78	44
7	20	86	53	86	25	85	57	85	30	85	1	84	33	84	4	83	35	83	5
1	43	91	16	90	49	90	21	89	54	89	25	88	57	88	28	87	59	87	29
6	7	95	41	95	24	94	46	94	19	93	51	93	23	92	55	92	26	91	57
00	31	100	6	99	39	99	12	98	46	98	18	97	50	97	22	96	54	96	25
104	57	104	31	104	5	103	39	103	13	102	46	102	18	101	51	101	24	100	55
109	21	109	55	108	31	108	5	107	40	107	14	106	45	106	21	105	55	105	26
13	44	113	19	112	55	112	31	112	6	111	41	111	16	110	51	110	25	109	58
18	6	118	43	117	19	116	56	116	32	116	9	115	44	115	20	114	55	114	30
22	26	122	4	121	42	121	20	120	57	120	35	120	12	119	48	119	25	119	1
126	45	126	23	126	2	125	42	115	20	124	59	124	37	124	15	123	53	113	31
131	1	131	41	130	22	130	2	129	42	119	22	119	2	128	41	128	20	128	0
135	16	135	58	134	40	134	22	134	3	133	44	133	26	133	6	132	47	132	28
139	28	139	11	138	54	138	38	138	21	138	3	137	46	137	28	137	11	136	53
143	39	143	23	143	8	142	53	142	37	142	22	142	6	141	50	141	35	141	18
147	47	147	33	147	19	147	5	146	52	146	38	146	24	146	10	145	55	145	41
151	53	151	41	151	29	151	17	151	4	150	52	150	40	150	28	150	15	150	2
155	58	155	48	155	37	155	27	155	16	155	6	154	55	154	44	154	34	154	22
160	1	159	51	159	44	159	35	159	26	159	17	159	8	158	59	158	50	158	41
164	3	163	56	163	49	163	41	163	34	163	28	163	20	163	13	163	6	162	58
168	3	167	58	167	53	167	48	167	42	167	37	167	31	167	25	167	20	167	14
172	3	171	59	171	56	171	52	171	40	171	45	171	41	1-1	37	171	34	171	30
176	2	176	0	175	58	175	56	175	55	175	53	175	51	175	49	175	48	175	46
180	0	180	0	180	0	180	0	180	0	180	0	180	0	180	0	180	0	180	0

Tabula Aſcenſionum obliquarum Eclipticæ.

Elevatio Poli.	11	12	13	14	15	16	17	18	19	20
S. G.	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′
♎ 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0
4	183 58	184 0	184 2	184 4	184 5	184 7	184 9	184 11	184 12	184 14
8	187 57	188 1	188 4	188 8	188 11	188 15	188 19	188 23	188 26	188 30
12	191 57	192 2	192 7	192 12	182 18	182 23	102 29	192 35	192 40	192 46
10	195 57	196 4	196 11	196 18	196 26	196 32	196 40	196 47	196 54	197 2
20	199 59	200 8	200 16	200 25	200 34	200 43	200 52	201 1	201 10	201 19
24	204 2	204 12	204 23	204 33	204 44	204 55	205 5	205 16	205 26	205 38
28	208 7	208 19	208 31	208 43	208 56	209 8	209 20	209 32	209 45	209 58
♏ 2	212 13	212 27	212 41	212 55	213 8	213 22	213 36	213 50	214 5	214 19
6	216 21	216 37	216 52	217 7	217 23	217 38	217 54	218 10	218 25	218 42
10	220 32	220 49	221 6	221 22	221 39	221 57	222 14	222 32	222 49	223 7
14	224 44	225 2	225 20	225 38	225 57	226 16	226 34	226 54	227 13	227 32
18	228 59	229 19	229 38	229 58	230 18	230 38	230 58	231 19	231 40	232 0
22	233 15	233 37	233 58	234 18	234 40	235 1	235 23	235 45	236 7	23[illegible] 29
26	137 34	237 56	228 18	238 40	239 3	239 26	239 48	240 12	240 35	240 59
♐ 0	141 54	242 17	242 41	243 4	243 27	243 51	244 16	244 40	245 5	245 30
4	245 16	246 41	247 5	247 29	247 54	248 19	248 44	249 9	249 35	250 2
8	250 39	251 4	251 29	251 55	252 20	252 46	253 12	253 39	254 5	254 34
12	255 3	255 29	255 55	256 21	256 47	257 14	257 42	258 8	258 36	259 5
16	259 29	259 4[illegible]	260 21	260 48	261 14	261 42	262 10	262 28	263 6	263 35
20	263 53	264 19	264 46	265 14	265 41	266 9	266 37	267 5	267 34	268 3
24	268 17	268 44	269 11	269 39	270 6	270 35	271 3	271 32	272 1	272 31
28	272 40	273 7	273 35	274 3	274 30	274 59	275 27	275 56	276 25	276 55
♑ 2	277 2	277 29	277 56	278 24	278 52	279 2[illegible]	279 48	280 17	280 47	281 10
0	281 22	281 49	282 15	282 44	283 11	283 39	284 7	284 36	285 5	285 35
10	285 39	286 5	286 32	287 0	287 27	287 55	288 23	288 51	289 20	289 49
14	289 53	200 19	290 46	291 12	291 39	292 7	292 35	293 3	293 31	293 59
18	294 4	294 3[illegible]	294 55	205 22	295 48	296 15	296 43	297 10	29[illegible] 5[illegible]	208 5
22	298 12	298 38	299 2	299 28	299 54	300 20	300 45	301 12	301 39	[illegible] 0
26	302 17	302 41	303 5	303 20	303 55	304 19	304 45	305 10	305 [illegible]	3[illegible] 2
♒ 0	306 18	306 41	307 5	307 28	307 51	308 15	308 40	309 4	309 29	309 54
4	310 14	310 37	310 59	311 21	311 43	312 6	312 29	312 53	313 16	313 40
8	314 6	314 28	314 48	315 10	315 31	315 52	316 14	310 30	315 58	31[illegible] 2[illegible]
12	317 55	318 15	318 37	318 54	319 14	319 34	319 55	320 16	320 36	3[illegible] 5[illegible]
16	321 41	321 59	322 17	322 36	322 54	323 13	323 32	323 51	324 10	[illegible]
20	325 22	325 39	325 56	326 12	326 29	326 4[illegible]	327 4	327 22	3[illegible] 39	[illegible]
24	329 1	329 16	329 32	329 47	330 2	330 18	330 33	330 5[illegible]	331 5	331 [illegible]
28	332 36	332 49	333 3	333 17	333 31	333 45	333 58	334 13	334 [illegible]	334 4[illegible]
♓ 2	336 8	336 20	336 32	336 44	336 56	337 9	337 21	337 3[illegible]	[illegible]	[illegible] 59
4	339 37	339 48	339 58	340 9	340 20	340 30	340 41	340 5[illegible]	[illegible] 2	[illegible]
10	343 5	343 14	343 22	343 31	344 40	343 49	343 58	344 [illegible]	[illegible]	344 2[illegible]
14	346 30	346 38	346 44	346 51	346 59	347 5	347 13	347 20	347 [illegible]8	347 35
18	349 54	350 0	350 4	350 10	350 15	350 20	350 2[illegible]	350 32	[illegible]	[illegible]
22	353 17	353 20	353 24	353 2[illegible]	353 31	353 31	353 38	353 42	[illegible]	[illegible]
26	355 39	356 40	356 43	356 44	356 46	356 48	355 50	35[illegible] 5[illegible]	356 53	3[illegible] 55
30	360 0	360 0	360 0	360 0	360 0	360 0	360 0	360	360 0	36[illegible] 0

Tabula Aſcenſionum obliquarum Ecliptice.

	22		23		24		25		26		27		28		29		30	
'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	3	1	2	59	2	57	2	55	2	53	2	51	2	48	2	47	2	44
7	6	3	5	59	5	55	5	51	5	47	5	43	5	38	5	35	5	30
1	9	6	9	0	8	54	8	48	8	42	8	35	8	29	8	23	8	16
7	12	10	12	2	11	54	11	46	11	38	11	30	11	21	11	12	11	4
5	15	16	15	6	14	56	14	46	14	36	14	26	14	15	14	4	13	54
5	18	24	18	12	18	0	17	49	17	36	17	24	17	11	16	59	16	46
8	21	35	21	21	21	8	20	54	20	40	20	25	20	11	19	55	19	41
3	24	48	24	33	24	18	24	1	23	46	23	29	23	13	22	55	22	39
1	28	5	27	48	27	31	27	13	26	55	26	37	26	18	26	0	25	40
4	31	26	31	7	30	48	30	29	30	9	29	49	29	29	29	8	28	47
0	34	50	34	30	34	9	33	49	33	27	33	4	32	43	32	19	31	57
1	38	20	37	57	37	36	37	13	36	50	36	26	36	2	35	37	35	13
7	41	54	41	30	41	6	40	42	40	17	39	53	39	27	39	0	38	34
6	45	32	45	7	44	40	44	15	43	50	43	22	42	56	42	28	42	0
1	49	15	48	49	48	22	47	54	47	28	47	0	46	31	46	2	45	32
2	53	4	52	38	52	9	51	41	51	12	50	43	50	13	49	43	49	12
7	56	58	56	30	56	1	55	32	55	2	54	32	54	0	53	29	52	57
7	60	58	60	28	59	59	59	29	58	58	58	26	57	54	57	21	56	49
2	65	3	64	32	64	1	63	31	62	59	62	27	61	55	61	20	60	47
1	69	11	68	40	68	9	67	38	67	6	66	33	66	0	65	26	64	51
5	73	25	72	54	72	22	71	50	71	18	70	45	70	11	69	37	69	2
3	77	42	77	12	76	40	76	8	75	35	75	2	74	28	73	53	73	18
5	82	4	81	34	81	2	80	30	79	57	79	24	78	50	78	15	77	40
9	86	29	85	58	85	27	84	55	84	23	83	50	83	16	82	41	82	6
7	90	57	90	26	89	55	89	24	88	52	88	19	87	46	87	12	86	37
6	95	27	94	57	94	26	93	56	93	24	92	51	92	19	91	45	91	11
8	99	50	99	29	98	59	98	29	97	59	97	27	96	55	96	22	95	49
0	104	31	104	3	103	34	103	5	102	35	102	5	101	33	101	2	100	29
2	109	5	108	38	108	10	107	41	107	12	106	44	106	13	105	43	105	12
5	113	39	113	13	112	16	112	18	111	52	111	24	110	55	110	26	109	56
7	118	12	117	48	117	22	116	56	116	31	116	4	115	37	115	9	114	40
8	122	44	122	21	121	57	121	33	121	9	120	43	120	18	119	51	119	24
8	127	16	126	54	126	32	126	10	125	47	125	23	124	59	124	34	124	9
7	131	48	131	27	131	6	130	46	130	24	130	2	129	40	129	17	128	54
4	136	16	135	57	135	38	135	19	134	59	124	39	134	19	133	58	133	37
1	140	44	140	28	140	10	139	52	139	45	139	17	138	58	138	39	138	20
5	145	11	144	56	144	40	144	24	144	8	143	52	143	35	143	18	143	1
9	149	35	149	22	149	8	148	55	148	40	148	26	148	11	147	57	147	41
1	153	59	153	48	153	36	153	24	153	12	153	0	452	47	152	34	152	21
1	158	22	158	12	158	2	157	52	157	42	157	32	157	21	157	10	157	1
1	162	43	162	36	162	27	162	20	162	11	162	3	161	54	161	46	161	37
9	167	3	165	58	166	51	166	46	166	39	166	33	166	26	166	20	165	13
6	171	22	171	19	171	15	171	11	171	7	171	2	170	58	170	54	170	49
4	175	42	175	40	175	38	175	36	175	34	175	32	175	29	175	28	175	25
0	180	0	180	0	180	0	180	0	180	0	180	0	180	0	180	0	180	0

Tabula Aſcenſionum obliquarum Ecliptica.

Elevatio Poli.	21	22	23	24	25	26	27	28	29	30
S. G.	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′
♎ 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0
4	184 16	184 18	184 20	184 22	184 24	184 26	184 28	184 31	184 32	184 35
8	188 34	188 37	188 41	188 45	188 49	188 53	188 58	189 2	189 6	189 11
12	192 51	192 57	193 2	193 9	193 14	193 21	193 27	193 34	193 40	193 47
16	197 9	197 17	197 24	197 35	197 40	197 49	197 57	198 6	198 14	198 23
20	201 29	201 38	201 48	201 58	202 8	202 18	202 28	202 38	202 50	202 59
24	205 49	206 1	206 12	206 24	206 36	206 48	207 0	207 13	207 26	207 39
28	210 11	210 25	210 38	210 52	211 5	211 20	211 34	211 49	212 3	212 19
♏ 2	214 35	214 49	215 4	215 20	215 30	215 52	216 8	216 25	216 42	216 59
6	218 59	219 16	219 32	219 50	220 8	220 25	220 43	221 2	221 21	221 40
10	223 26	223 44	224 3	224 22	224 41	225 1	225 21	225 41	226 2	226 23
14	227 53	228 12	228 33	228 54	229 14	229 36	229 58	230 20	230 43	231 6
18	232 22	232 44	233 6	233 8	233 50	334 13	234 37	235 1	235 26	235 51
22	236 52	237 16	237 39	238 3	238 27	238 51	239 17	239 42	240 9	240 36
26	241 23	241 48	242 12	242 38	243 4	243 29	243 56	244 23	244 51	245 20
♐ 0	245 55	246 21	246 47	247 14	247 42	248 8	248 36	249 5	249 34	250 4
4	250 28	250 55	251 22	251 50	252 19	252 48	253 16	253 47	254 17	254 48
8	255 0	255 29	255 57	256 26	256 55	257 15	257 55	258 27	258 58	259 31
12	259 32	260 1	260 31	261 1	261 31	262 1	262 33	263 5	263 38	264 11
16	264 4	264 33	265 3	265 34	266 4	266 36	267 9	267 41	268 15	268 49
20	268 33	269 3	269 34	270 5	270 36	271 8	271 41	272 14	272 48	273 23
24	273 1	273 31	274 2	274 33	274 5	275 37	276 10	276 44	277 19	277 54
28	277 25	277 56	278 26	278 58	279 30	280 3	280 36	281 10	281 45	282 20
♑ 2	281 47	282 18	282 48	283 20	283 52	284 25	284 58	285 32	286 7	285 42
6	285 5	286 35	287 6	287 38	288 10	288 42	289 15	289 49	290 23	290 58
10	290 19	290 49	291 20	291 51	292 22	292 54	293 27	294 0	294 34	295 9
14	294 28	294 57	295 28	295 59	296 29	297 1	297 33	298 5	298 40	299 13
18	298 33	209 2	299 33	300 1	300 31	301 2	301 34	302 6	302 39	303 11
22	302 33	303 2	303 30	303 59	304 28	304 59	304 28	306 0	306 31	307 3
26	306 28	306 56	307 22	307 51	308 19	308 48	308 17	309 47	310 17	310 48
♒ 0	310 19	310 45	311 11	311 38	312 6	312 32	312 0	313 29	313 58	314 28
4	314 4	314 28	314 53	315 19	315 45	316 10	316 38	317 4	317 32	318 0
8	317 43	318 6	318 30	318 54	319 18	319 43	320 7	320 33	321 0	321 20
12	321 19	321 40	322 3	322 24	322 47	323 10	323 34	323 58	324 23	324 47
16	324 50	325 10	325 30	325 51	326 11	326 33	326 56	327 17	327 41	328 3
20	328 16	328 34	328 53	329 12	329 31	329 51	330 11	330 31	330 52	331 13
24	331 39	331 55	332 12	332 29	332 47	333 5	333 23	333 42	334 0	334 20
28	334 57	335 12	335 27	335 42	335 59	336 14	336 31	336 47	337 5	337 21
♓ 2	338 12	338 25	338 39	338 52	339 6	339 20	339 35	339 49	340 5	340 19
6	341 24	341 36	341 48	342 0	342 11	342 24	342 36	342 49	343 1	343 14
10	344 35	344 44	344 54	345 4	345 14	345 24	345 34	345 45	345 56	346 6
14	347 43	347 50	347 58	348 6	348 14	348 22	348 30	348 39	348 48	348 56
18	350 49	350 54	351 0	351 6	351 12	351 18	351 25	351 31	351 37	351 44
22	353 53	353 57	354 1	354 5	354 9	354 13	354 17	354 22	354 25	354 20
26	356 7	356 59	357 1	357 3	357 5	357 7	357 9	357 12	357 13	357 16
30	360 0	360 0	360 0	360 0	360 0	360 0	360 0	360 0	360 0	360 0

Tabula Aſcenſionum obliquarum Ecliptice.

	32		33		34		35		36		37		38		39		40	
'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	2	40	2	37	2	35	2	32	2	30	2	28	2	25	2	22	2	20
26	5	21	5	16	5	11	5	6	5	2	4	56	4	57	4	46	4	40
10	8	3	7	56	7	48	7	41	7	34	7	26	7	18	7	10	7	1
55	10	46	10	36	10	27	10	17	10	7	9	57	9	46	9	35	9	24
42	13	31	13	19	13	7	22	55	12	43	12	30	12	17	12	3	11	48
32	16	19	16	4	15	51	15	35	15	21	15	6	14	49	14	34	14	16
25	19	10	18	52	18	37	18	19	28	2	17	45	17	25	17	7	16	48
21	22	4	21	44	21	26	21	7	20	46	20	27	20	5	19	44	19	22
20	25	1	24	40	24	19	23	57	23	35	23	12	22	49	22	25	22	0
25	28	3	27	40	27	17	26	53	26	29	26	3	25	38	25	11	24	44
33	31	9	30	44	30	19	29	53	29	26	28	58	18	31	28	2	27	32
47	34	21	33	54	33	7	32	59	32	30	32	0	31	30	30	58	30	26
6	37	39	37	10	36	41	36	10	35	40	35	8	34	35	34	2	33	27
31	41	2	40	31	40	0	39	28	38	56	38	21	37	47	37	11	36	34
2	44	31	43	59	43	26	41	52	42	18	41	42	41	6	40	28	39	49
40	48	7	47	33	47	0	46	24	45	48	45	11	44	32	43	54	43	12
24	51	50	51	15	50	40	50	3	49	25	48	47	48	6	47	26	46	43
14	55	38	55	3	54	26	53	49	53	9	52	30	51	49	51	6	50	23
12	59	36	58	50	58	21	57	42	57	3	56	22	55	39	54	56	54	11
15	63	39	63	1	62	23	61	43	61	3	60	21	59	38	58	53	58	7
25	67	48	67	10	66	31	65	51	65	10	64	28	63	44	62	59	62	12
41	72	4	71	26	70	47	70	5	69	24	68	42	67	58	67	13	66	26
2	76	25	75	48	75	9	74	26	73	47	73	4	72	20	71	35	70	47
29	80	5	81	15	79	36	78	56	78	15	77	33	76	49	76	4	75	17
1	85	25	84	47	84	9	83	29	82	49	82	7	81	24	80	39	79	53
37	90	1	89	23	88	46	88	7	87	28	86	46	86	4	85	21	84	35
16	94	45	94	4	93	27	92	50	92	11	91	31	90	50	90	8	89	29
57	99	3	98	48	98	13	97	36	96	58	96	19	95	40	94	59	94	17
40	104	7	103	34	103	0	102	24	101	49	101	12	100	33	99	54	99	13
26	108	55	108	23	107	50	107	16	106	42	106	6	105	30	104	52	104	13
11	113	42	113	11	112	40	112	8	111	36	111	2	110	27	109	52	109	15
57	118	29	118	2	127	31	117	2	116	30	115	59	115	26	114	53	114	18
43	123	17	122	51	122	23	121	55	121	26	120	57	120	27	119	55	219	22
31	118	6	127	42	127	16	126	51	126	23	125	56	125	28	124	59	124	28
15	132	53	132	30	132	7	131	43	131	19	130	53	130	28	130	1	119	34
0	137	41	137	19	136	59	136	37	136	15	135	52	135	28	135	5	134	40
44	142	26	142	7	141	49	141	29	141	9	140	49	140	28	140	7	139	44
26	147	10	146	54	146	38	146	21	146	3	145	45	145	27	145	8	144	48
8	151	54	151	40	151	26	151	11	150	57	150	41	150	25	150	9	149	52
48	156	37	156	25	156	13	156	1	155	49	155	36	155	23	255	9	154	54
28	161	19	161	9	161	0	160	50	160	41	160	30	160	19	160	9	159	57
7	166	0	165	53	165	46	165	38	165	31	165	13	165	15	165	7	164	59
45	170	40	170	36	170	31	170	26	170	21	170	16	170	10	170	5	170	0
23	175	20	175	18	175	16	175	13	175	11	175	8	175	6	175	3	175	0
0	180	0	180	0	180	0	180	0	180	0	180	0	180	0	180	0	180	0

Tabula Aſcenſionum obliquarum Eclipticæ.

Elevatio Poli.	31	32	33	34	35	36	37	38	39	40
S. G.	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′
♎ 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0
4	184 37	184 40	184 42	184 44	184 47	184 49	184 52	184 54	184 57	185 0
8	189 15	189 20	189 24	189 29	189 34	189 39	189 44	189 50	189 55	190 0
12	193 53	194 0	194 7	194 14	194 22	194 29	194 37	194 45	194 53	195 1
16	198 32	198 41	198 51	199 0	199 10	199 19	199 30	199 41	199 51	200 3
20	203 12	203 23	203 35	203 47	203 59	204 11	204 24	204 37	204 51	205 5
24	207 52	208 6	208 20	208 34	208 49	209 3	209 19	209 35	209 51	210 8
28	212 34	212 50	213 6	213 22	213 39	213 57	214 15	214 33	214 52	215 12
♏ 2	217 19	217 34	217 53	218 11	218 31	218 51	219 11	219 32	219 53	220 16
6	222 0	222 19	222 41	223 1	223 23	223 45	224 8	224 32	224 55	225 20
10	226 45	227 7	227 30	227 53	228 17	228 41	229 7	229 32	229 59	230 26
14	231 29	231 54	232 18	232 44	233 9	233 37	234 4	234 32	235 1	235 32
18	236 17	236 43	237 9	237 37	238 5	238 34	239 3	239 33	240 5	240 38
22	241 3	241 31	241 59	242 29	242 59	243 30	244 1	244 34	245 7	245 42
26	245 49	246 18	246 49	247 20	247 52	248 24	248 58	249 33	250 8	250 45
♐ 0	250 34	251 5	251 37	252 10	252 44	253 18	253 54	254 30	255 8	255 47
4	255 20	255 53	256 26	257 0	257 36	258 11	258 49	259 27	260 6	260 47
8	260 3	260 37	261 12	261 47	262 24	263 2	263 41	264 20	265 1	265 43
12	264 44	265 20	265 55	266 32	267 10	267 49	268 29	269 10	269 52	270 36
16	269 23	269 50	270 37	271 14	271 53	272 32	273 14	273 56	274 39	275 25
20	273 59	274 35	275 13	275 51	276 31	277 11	277 53	278 36	279 21	280 7
24	278 31	279 7	279 45	280 24	281 4	281 45	282 27	288 11	283 56	284 43
28	282 58	283 35	284 12	284 51	285 32	286 13	286 56	287 40	288 25	289 13
♑ 2	287 19	287 56	288 34	289 13	289 55	290 36	291 18	292 2	292 47	293 34
6	291 35	292 12	292 50	293 29	294 9	294 50	295 32	296 16	297 1	297 48
10	295 45	296 21	296 59	297 37	298 17	298 57	299 39	300 22	301 7	301 53
14	299 48	300 24	301 1	301 39	302 18	302 57	303 38	304 21	305 4	305 49
18	303 46	304 22	304 57	305 34	306 11	306 51	307 30	308 11	308 54	309 37
22	307 30	308 10	308 45	309 20	309 57	310 35	311 13	311 54	312 34	313 17
26	311 20	311 53	312 27	313 0	313 36	314 12	314 49	315 28	316 6	316 48
♒ 0	314 58	315 29	316 1	316 34	317 8	317 42	318 18	318 54	319 32	320 11
4	318 29	318 58	319 29	320 0	320 32	321 4	321 39	322 13	322 49	323 26
8	321 54	322 21	322 50	323 19	323 50	324 20	324 52	325 25	325 58	326 33
12	325 13	325 39	326 6	326 33	327 1	327 30	328 0	328 30	329 2	329 34
16	328 27	328 51	329 16	329 41	330 7	330 34	331 2	331 29	331 58	332 28
20	331 35	331 57	332 20	332 43	333 7	333 31	333 57	334 22	334 49	335 16
24	334 40	334 59	335 20	335 41	436 3	335 25	336 48	337 11	337 35	338 0
28	337 39	337 56	338 16	338 34	338 53	339 14	339 33	339 55	340 16	340 38
♓ 2	340 35	340 50	341 8	341 23	341 41	341 58	342 15	342 35	342 53	343 12
6	342 28	343 41	343 56	344 9	344 25	344 39	344 54	345 11	345 26	345 44
10	346 18	346 29	345 41	346 53	347 5	347 17	347 30	347 43	347 57	348 12
14	349 5	349 14	349 24	349 33	349 43	349 53	350 3	350 14	350 29	350 36
18	351 50	351 57	352 4	352 12	352 19	352 26	352 34	352 42	352 50	352 59
22	354 34	354 39	354 44	354 49	354 54	354 58	355 4	355 9	355 14	355 20
26	357 18	357 20	357 23	357 25	357 28	357 30	357 52	357 35	357 38	357 40
30	360 0	360 0	360 0	360 0	360 0	360 0	360 0	360 0	360 0	360 0

Tabula Aſcenſionum obliquarum Eclipticæ.

41		42		43		44		45		46		47		48		49		50	
gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	16	2	13	2	11	2	8	2	4	2	0	1	57	1	53	1	50	1	46
4	34	4	28	4	22	4	16	4	9	4	2	3	55	3	48	3	40	3	32
6	53	6	44	6	34	6	25	6	15	6	5	5	55	5	44	5	32	5	20
9	13	9	0	8	48	8	36	8	23	8	9	7	55	7	40	7	25	7	9
11	35	11	20	11	4	10	49	10	32	10	15	9	58	9	39	9	20	9	0
13	59	13	42	13	24	13	5	12	44	12	24	12	3	11	41	11	18	10	55
16	28	16	7	15	46	15	24	15	1	14	37	14	12	13	46	13	20	12	52
18	59	18	36	18	12	17	46	17	20	16	53	16	25	15	56	15	25	14	53
21	34	21	8	20	41	20	12	19	43	19	13	18	41	18	9	27	34	16	58
24	15	23	46	23	16	22	45	22	12	21	39	21	4	20	27	19	49	19	9
27	1	26	29	25	56	25	22	24	47	24	10	23	31	22	51	22	10	21	26
29	53	29	18	28	44	28	6	27	28	26	47	26	5	25	23	24	28	23	49
32	52	32	15	31	37	30	57	30	15	29	33	28	48	28	2	27	13	26	21
35	56	35	16	34	35	33	53	33	10	32	23	31	36	30	46	29	53	28	59
39	9	38	17	37	44	36	59	36	13	35	24	34	34	33	41	32	45	31	47
42	30	41	46	41	2	40	14	39	25	38	34	37	41	36	45	35	47	34	46
46	0	45	13	44	27	43	38	42	47	41	52	40	58	40	1	38	59	37	55
49	38	48	51	48	2	47	11	46	18	45	24	44	25	43	24	42	22	41	14
53	25	52	36	51	46	50	53	49	59	49	3	48	3	47	1	45	56	44	47
57	22	56	30	55	39	54	46	53	50	52	53	51	52	50	48	49	41	48	32
61	24	60	34	59	43	58	48	57	52	56	53	55	52	54	48	53	40	52	29
65	38	64	48	63	55	63	1	61	4	61	4	60	3	58	58	57	50	56	38
69	59	69	2	68	17	67	21	66	26	65	27	64	25	63	20	62	11	61	0
74	29	73	39	72	47	71	53	70	56	69	58	68	57	67	52	66	44	65	33
79	6	78	16	77	25	76	32	75	36	74	39	73	38	72	34	71	28	70	18
83	49	83	1	82	11	81	18	80	24	79	28	78	28	77	26	76	20	75	12
88	39	87	52	87	5	86	12	85	20	84	25	83	26	82	26	81	24	80	16
93	33	92	47	92	1	91	11	90	20	89	27	88	31	87	34	86	32	85	27
98	31	97	47	97	2	96	15	95	26	94	35	93	42	92	46	91	48	90	47
103	33	102	51	101	8	101	23	100	37	99	48	98	58	98	5	97	9	96	11
108	37	107	57	107	16	106	34	105	50	105	4	104	17	103	27	103	34	101	40
113	42	113	5	112	27	111	47	111	6	110	23	109	38	108	52	108	3	107	12
118	49	118	15	117	39	117	2	116	23	115	44	115	2	114	19	114	34	112	46
123	57	123	25	122	53	122	19	121	42	121	6	120	28	119	48	119	7	118	23
129	5	128	36	128	6	127	35	127	2	126	29	125	54	125	17	124	39	123	59
134	14	133	48	133	21	132	52	132	23	132	52	131	20	130	49	130	13	129	37
139	22	138	58	138	34	138	8	137	43	137	15	136	47	136	18	135	48	135	16
144	29	144	8	143	47	143	24	142	2	142	38	142	13	141	47	141	21	140	35
149	35	149	18	148	59	148	40	148	20	148	0	147	39	147	17	146	54	146	30
154	41	154	26	154	10	153	55	153	38	153	21	153	4	152	45	152	26	152	6
159	46	159	34	159	22	159	9	158	56	158	42	158	28	158	13	157	58	157	42
164	50	164	41	164	31	164	12	164	12	164	2	163	52	163	41	163	29	163	17
169	53	169	48	169	41	169	25	169	28	169	22	169	15	169	8	169	0	168	52
174	57	174	54	174	51	174	48	174	44	174	41	174	38	174	34	174	31	174	27
180	0	180	0	180	0	180	0	180	0	180	0	180	0	180	0	180	0	180	0

Tabula Aſcenſionum obliquarum Ecliptica.

Elevatio Poli.	41	41	43	44	45	46	47	48	49	50
S. G.	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '
♎ 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0
4	185 3	185 6	185 9	185 12	185 16	185 19	185 22	185 26	185 29	185 33
8	190 7	190 12	190 19	190 25	190 32	190 38	190 45	190 52	191 0	191 8
12	195 10	195 19	195 29	195 38	195 48	195 58	196 8	196 19	196 31	196 31
16	200 14	200 26	200 38	200 51	201 4	201 18	201 32	201 47	202 2	202 18
20	205 19	205 34	205 50	206 5	206 21	206 39	206 56	207 15	207 34	207 54
24	210 25	210 42	211 1	211 20	211 40	212 0	212 21	212 43	213 6	213 30
28	215 31	215 52	216 13	216 36	216 58	217 22	217 47	218 13	218 39	219 7
♏ 2	220 38	221 1	221 26	221 52	222 17	222 45	223 13	223 42	224 11	224 44
6	225 46	226 12	226 39	227 8	227 37	228 8	228 40	229 11	229 47	230 23
10	230 55	231 24	231 54	232 25	232 58	233 31	234 6	234 43	235 21	236 1
14	236 3	236 35	237 7	237 41	238 18	238 54	239 31	240 12	240 53	241 37
18	241 11	241 45	242 21	242 58	243 37	244 16	244 58	245 41	245 26	247 14
22	246 18	246 55	247 33	248 13	248 54	249 37	250 21	251 8	251 57	252 48
26	251 23	252 3	252 44	253 26	254 10	254 56	255 43	256 33	257 26	258 20
♐ 0	256 27	257 9	257 52	258 37	259 23	260 12	261 2	261 55	262 51	263 49
4	261 29	262 13	262 58	263 45	264 34	265 25	266 18	267 14	268 12	269 13
8	266 17	267 13	267 59	268 49	269 42	270 33	271 29	271 26	272 28	274 33
12	271 21	272 8	272 56	273 48	274 40	275 35	276 34	277 34	278 36	279 44
16	276 11	276 59	277 49	278 42	279 16	280 32	281 32	282 34	283 40	284 48
20	280 54	281 44	282 35	283 28	284 24	285 21	286 22	287 26	288 32	289 42
24	285 31	286 21	287 13	288 7	289 4	290 2	291 3	292 8	293 16	294 27
28	290 1	290 51	291 43	292 39	293 34	294 33	295 35	296 40	297 49	299 0
♑ 2	294 22	295 12	296 5	296 59	297 56	298 56	299 57	301 2	302 10	303 22
6	298 36	299 26	300 17	301 12	302 8	303 7	304 8	305 12	306 20	307 31
10	302 40	303 30	304 21	305 14	306 10	307 7	308 8	309 12	310 18	311 28
14	306 35	307 24	308 14	309 7	310 1	310 57	311 57	312 59	314 4	315 13
18	310 22	311 9	311 58	312 49	313 42	314 36	315 35	316 34	317 39	318 46
22	314 0	314 47	315 33	316 22	317 13	318 7	319 2	319 59	321 1	322 5
26	317 30	318 14	318 58	319 46	320 35	321 26	322 19	323 15	324 13	325 14
♒ 0	320 51	321 33	322 16	323 1	323 47	324 36	325 26	326 19	327 15	328 13
4	324 4	324 44	325 25	326 7	326 50	327 37	328 24	329 14	330 7	331 1
8	327 8	327 45	328 23	329 3	329 45	330 27	331 11	331 58	332 47	333 39
12	330 7	330 42	331 16	331 54	332 32	333 13	333 55	334 37	335 22	336 11
16	332 59	333 31	334 4	334 38	335 13	335 50	336 29	337 9	337 50	338 34
20	335 45	336 14	336 44	337 15	337 48	338 21	338 56	339 33	340 11	340 51
24	338 26	338 52	339 19	339 48	340 17	340 47	341 19	341 51	342 26	343 2
28	341 1	341 24	341 48	342 14	342 40	343 7	343 35	344 4	344 35	345 7
♓ 2	343 32	343 53	344 14	344 36	344 59	345 23	345 48	346 14	346 42	347 8
6	346 1	346 18	346 36	346 55	347 16	347 36	347 57	348 19	348 42	349 5
10	348 25	348 40	348 56	349 11	349 28	349 45	350 2	350 21	350 40	351 0
14	350 47	351 0	351 12	351 24	351 37	351 51	352 5	352 20	352 35	352 51
18	353 7	353 16	353 26	353 35	353 45	353 55	354 5	354 16	354 28	354 40
22	355 26	355 32	355 38	355 44	355 51	355 58	356 5	356 12	356 20	356 28
26	357 44	357 47	357 49	357 42	357 56	358 0	358 3	358 7	358 10	358 14
30	360 0	360 0	360 0	360 0	360 0	360 0	360 0	360 0	360 0	360 0

Tabula Aſcenſionum obliquarum Eclipticæ.

51	52		53		54		55		56		57		58		59		60	
′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	1	37	1	32	1	28	1	23	1	18	1	12	1	7	1	0	0	54
24	3	15	3	6	2	57	2	47	2	37	2	26	2	14	2	2	1	49
8	4	55	4	41	4	27	4	12	3	57	3	40	3	22	3	4	2	45
52	6	35	6	17	5	58	5	39	5	17	4	56	4	32	4	7	3	41
40	8	18	7	55	7	32	7	7	6	41	6	13	5	43	5	12	4	39
30	10	4	9	36	9	8	8	38	8	6	7	33	6	57	6	20	5	39
23	11	53	11	20	10	47	10	13	9	35	8	56	8	14	7	39	6	43
20	13	45	13	8	12	20	11	50	11	7	10	22	9	34	8	44	7	50
21	15	42	15	1	14	18	13	32	12	44	11	52	10	59	10	1	8	59
28	17	45	16	59	16	11	15	20	14	26	13	29	12	28	11	24	10	15
40	19	52	19	2	18	8	17	13	16	13	15	11	14	3	12	51	11	35
1	22	8	21	13	20	15	19	14	18	9	17	0	15	45	14	27	13	1
28	24	31	23	31	22	28	21	22	20	12	18	56	17	35	16	9	14	36
1	27	2	25	58	24	50	23	39	22	22	21	1	19	33	18	0	16	19
46	29	42	28	34	27	22	26	6	24	44	23	17	21	43	20	2	18	12
42	32	34	31	22	30	6	28	44	27	18	25	45	24	5	22	16	20	18
48	35	36	34	22	33	1	31	35	30	5	28	27	26	40	24	46	22	40
5	38	51	37	32	36	8	34	41	33	3	31	21	29	30	27	28	25	16
35	42	19	40	57	39	31	37	59	36	20	34	33	32	36	30	30	28	10
18	45	59	44	36	43	7	41	33	39	51	38	0	36	1	33	50	31	25
13	49	53	48	29	46	58	45	23	43	38	41	46	39	43	37	30	35	1
22	54	2	52	35	51	5	49	28	47	44	45	51	43	45	41	31	39	0
44	58	24	56	59	55	28	53	49	52	5	50	12	48	7	45	52	43	22
18	62	58	61	33	60	3	58	27	56	43	54	50	52	48	50	34	48	6
4	67	45	66	22	64	53	63	19	61	37	59	46	57	47	55	36	53	11
59	72	44	71	22	69	56	68	24	66	44	64	57	63	1	60	54	58	35
8	77	52	76	34	75	10	73	41	72	5	70	23	68	31	66	30	64	17
21	83	10	81	55	80	35	79	8	77	37	75	59	74	14	72	19	70	12
42	88	34	87	22	86	6	84	45	83	19	81	46	80	6	78	18	76	20
10	94	6	92	58	91	46	90	30	89	8	87	41	86	7	84	26	82	36
00 42	00	42	98	38	97	31	96	20	95	4	93	42	92	14	90	41	88	59
06 18	105	22	104	22	103	19	102	13	101	3	99	47	98	26	97	0	95	27
11 57	111	4	110	9	109	11	108	10	107	5	105	56	104	42	103	23	101	58
17 37	116	49	115	59	115	5	114	10	113	10	112	7	111	0	109	48	108	31
23 18	122	35	121	49	121	1	120	10	119	16	118	19	117	18	116	14	115	5
29 1	128	22	127	41	126	57	126	12	125	24	124	31	123	38	122	41	121	39
34 43	134	8	133	31	132	53	132	13	131	30	130	45	129	57	129	6	128	12
40 24	139	54	139	22	138	48	138	13	137	36	136	57	136	15	135	31	134	44
46 6	145	40	145	12	144	43	144	13	143	42	143	8	142	33	141	55	141	15
51 46	151	24	151	1	150	38	150	13	149	47	149	19	148	49	148	18	147	45
57 26	157	8	156	50	156	31	156	11	155	51	155	29	155	5	154	40	154	14
63 5	162	52	162	38	162	24	162	8	161	54	161	37	161	20	161	1	160	42
68 44	168	35	168	26	168	16	168	7	167	57	167	45	167	34	167	21	167	9
74 22	174	18	174	13	174	8	174	4	173	59	173	53	173	48	173	41	173	35
80 0	180	c	180	0	180	0	180	0	180	0	180	0	180	0	180	0	180	0

Tabula Aſcenſionum obliquarum Ecliptice.

Elevatio Poli.	51	52	53	54	55	56	57	58	59	60
S. G.	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′
♎ 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0	180 0
4	185 38	185 42	185 47	185 52	185 56	186 1	186 7	186 12	186 19	186 25
8	191 16	191 25	191 34	191 44	191 53	192 3	192 15	192 26	192 39	192 51
12	196 55	197 8	197 22	197 36	197 50	198 6	198 23	198 40	198 50	199 18
16	202 34	202 52	203 10	203 29	203 49	204 9	204 31	204 55	205 20	205 46
20	208 14	208 36	208 59	209 22	209 47	210 13	210 41	211 11	211 42	212 15
24	213 54	214 20	214 48	215 17	215 47	216 18	216 52	217 27	218 5	218 45
28	219 36	220 6	220 38	221 12	221 47	222 24	223 3	223 45	224 29	225 16
♏ 2	225 17	225 52	226 29	227 7	227 47	228 30	229 15	230 3	230 54	231 48
6	230 59	231 38	232 19	233 33	233 48	234 36	235 29	236 22	237 19	238 31
10	236 42	237 25	238 11	238 59	239 50	240 44	241 41	242 42	243 46	244 55
14	242 23	243 11	244 1	244 55	245 50	246 50	247 53	249 0	250 12	251 29
18	248 3	248 56	249 51	250 49	251 50	252 55	254 4	255 18	256 37	258 2
22	253 42	254 38	255 38	256 41	257 47	258 57	260 11	261 34	263 0	264 33
26	259 19	260 18	261 22	262 29	263 40	264 56	266 18	267 46	269 19	271 1
♐ 0	264 50	265 54	267 2	268 14	269 30	270 52	272 19	273 53	275 34	277 24
4	270 18	271 26	272 38	273 54	275 15	276 41	278 14	279 54	281 42	283 40
8	275 39	276 50	178 5	279 25	280 52	282 23	284 2	285 46	287 41	289 48
12	280 52	282 8	283 26	284 50	286 19	287 55	189 37	291 29	293 30	295 43
16	286 1	287 16	288 38	290 4	291 26	293 16	295 2	296 59	299 6	301 25
20	290 56	292 15	293 38	295 7	296 41	298 22	300 14	302 13	304 24	306 49
24	295 42	297 2	298 27	299 57	301 33	303 17	305 10	307 12	309 26	311 54
28	300 16	301 36	303 1	304 32	306 11	307 55	309 48	311 53	314 8	316 38
♑ 2	304 38	305 58	307 25	308 55	310 22	311 16	314 9	316 15	318 29	321 0
6	308 47	310 7	311 31	313 2	314 37	310 22	318 14	320 17	322 30	324 59
10	312 44	314 1	315 24	316 53	318 27	320 9	321 0	323 59	326 10	328 35
14	316 25	317 41	319 3	320 29	322 1	323 40	325 27	327 24	329 30	331 50
18	319 55	321 9	312 28	323 52	325 19	326 57	328 29	330 30	332 32	334 44
22	323 12	324 24	325 38	326 59	328 25	329 55	331 33	333 20	335 14	337 20
26	326 18	327 26	328 38	329 54	331 16	332 42	334 15	335 55	337 44	339 42
♒ 0	329 14	330 18	331 26	332 38	333 54	335 16	336 43	338 17	339 58	341 48
4	331 50	332 58	334 2	335 10	336 11	337 38	338 59	340 27	342 0	343 41
8	334 32	335 29	336 29	337 32	338 36	339 48	341 4	342 25	343 51	345 24
12	336 59	337 52	338 47	339 45	340 46	341 51	343 0	344 15	345 33	346 59
26	339 20	340 8	340 58	341 52	342 47	343 47	344 49	345 57	347 9	348 25
20	341 32	342 15	343 1	343 49	344 40	345 34	346 31	347 22	348 36	349 45
24	343 39	344 18	344 59	345 41	346 18	347 16	348 8	349 1	349 59	351 1
28	345 40	346 15	346 52	347 30	348 10	348 53	349 38	350 26	351 16	352 10
♓ 2	347 37	348 7	348 40	349 13	349 47	350 25	351 4	351 46	352 30	353 17
6	349 20	349 56	350 24	350 52	351 22	351 54	352 27	353 3	353 40	354 21
10	351 20	351 42	352 5	352 28	352 53	353 19	353 47	354 17	354 48	355 21
14	353 8	353 25	353 43	354 2	354 21	354 43	355 4	355 28	355 53	356 19
18	354 52	355 5	355 19	355 33	355 48	356 3	356 20	356 38	356 56	357 14
22	356 36	356 45	356 54	357 3	357 12	357 23	357 34	357 46	357 58	358 11
26	358 19	358 23	358 28	358 32	358 37	358 41	358 48	358 53	359 0	359 6
30	360 0	360 0	360 0	360 0	360 0	360 0	360 0	360 0	360 0	360 0

Tabula Aſcenſionum obliquarum Ecliptica.

61		62		63		64		65		66.		67	
gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	46	0	39	0	32	0	23	0	15	0	4	359	55
1	35	1	21	1	5	0	47	0	30	0	10	359	49
2	24	2	2	1	38	1	12	0	45	0	15	359	45
3	12	2	43	2	10	1	37	1	1	0	20	359	40
4	4	3	26	2	46	2	3	1	17	0	27	359	34
4	57	4	11	3	22	2	31	1	34	0	32	359	28
5	53	4	59	4	2	3	0	1	52	0	39	359	21
6	51	5	48	4	42	3	30	2	11	0	46	359	14
7	54	6	42	5	25	4	2	2	31	0	53	359	4
9	0	7	40	6	12	4	38	2	54	1	1	358	54
10	10	8	41	7	4	5	16	3	19	1	9	358	43
11	29	9	49	8	1	6	1	3	47	1	20	358	30
12	54	11	4	9	4	6	49	4	19	1	31	358	16
14	29	12	27	10	14	7	45	4	57	1	46	358	0
16	12	14	0	11	33	8	47	5	41	2	2	357	40
18	8	15	46	13	4	10	3	6	34	2	20	357	15
20	20	17	45	14	50	11	31	7	37	2	42	356	18
22	48	20	2	16	54	13	15	8	54	3	8	353	18
25	34	22	39	19	18	15	22	10	34	3	28	348	57
28	44	25	40	22	10	18	0	12	44	4	12	0	0
32	13	29	2	25	26	21	0	15	18	4	49	0	0
36	9	32	56	29	13	24	42	18	49	6	49	0	0
40	33	37	21	33	37	29	4	23	11	11	10	0	0
45	18	42	10	38	31	34	6	28	26	17	46	0	0
50	28	47	28	43	57	39	43	34	27	26	1	0	0
55	59	53	5	49	45	45	49	40	59	34	12	19	23
61	50	59	5	55	56	52	17	47	58	42	19	32	20
67	57	65	21	62	24	59	4	55	11	50	23	43	52
74	10	71	45	69	5	66	2	62	32	58	25	53	17
80	37	78	22	75	56	73	12	70	1	66	25	62	2
87	9	85	7	82	54	80	25	77 ·	37	74	25	70	41
93	46	91	55	89	54	87	41	85	13	82	21	79	8
100	26	98	47	96	58	94	57	92	46	90	15	87	30
107	8	105	38	104	1	102	13	100	17	98	5	95	41
113	50	112	30	111	3	109	29	107	45	105	51	103	46
120	33	119	22	118	6	116	42	115	11	113	33	111	44
127	14	126	11	125	6	123	52	122	34	121	8	119	39
133	53	132	59	132	2	131	0	129	54	128	40	127	24
140	33	139	47	138	58	138	7	137	10	136	4	135	1
147	10	146	33	145	52	145	10	144	24	143	3	142	30
153	46	153	16	152	44	152	10	151	34	150	54	150	12
160	21	160	0	159	36	159	10	158	42	158	13	157	41
166	55	166	40	166	24	166	7	165	50	165	29	165	8
173	26	173	19	173	12	173	3	172	56	172	44	172	25
180	0	180	0	180	0	180	0	180	0	180	0	180	0

Tabula Aſcenſionum obliquarum Eclipticæ.

Elevatio Poli		61		62		63		64		65		66		67	
S.	G.	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'
♎	0	180	0	180	0	189	0	180	0	180	0	180	0	180	0
	4	186	34	186	41	185	48	186	57	187	4	187	16	187	35
	8	193	5	193	20	193	36	193	53	194	10	194	31	194	51
	12	199	39	200	0	200	24	200	50	201	18	201	47	202	19
	16	200	14	206	44	207	16	207	50	208	26	209	6	209	48
	20	212	50	213	27	214	8	214	50	215	36	216	27	217	30
	24	219	27	220	13	221	2	221	53	222	50	223	52	224	49
	28	226	7	227	1	227	58	229	0	230	6	231	20	232	36
♏	2	232	46	233	49	234	54	236	8	237	26	238	52	240	21
	6	239	[illegible]	240	38	241	54	243	18	244	49	245	27	248	16
	10	246	10	247	30	248	57	250	31	252	15	254	9	256	14
	14	252	52	254	22	255	59	257	47	259	43	261	55	264	19
	18	259	34	261	13	263	2	205	3	267	14	269	45	272	30
	22	266	14	268	5	270	6	272	19	274	47	277	39	280	52
	26	272	51	274	53	277	6	279	35	282	23	285	35	289	19
♐	0	279	22	281	38	284	4	286	48	289	59	293	35	297	58
	4	285	50	288	15	290	55	293	58	297	28	301	35	306	43
	8	292	6	294	39	297	36	300	56	304	49	309	37	316	8
	12	298	10	300	55	304	4	307	43	312	2	317	41	327	40
	16	304	1	306	55	310	15	314	11	319	1	325	48	340	37
	20	309	32	312	32	316	3	320	17	325	33	333	59		
	24	314	42	317	50	321	29	325	54	331	34	342	14		
	28	319	27	322	59	326	23	330	56	336	49	348	50		
♑	2	323	51	327	4	330	47	335	18	341	11	353	11		
	6	327	47	330	58	334	34	339	0	344	42	355	11		
	10	331	16	334	20	337	50	342	0	347	16	355	48		
	14	334	26	337	21	340	42	344	58	349	26	356	22	11	3
	18	337	12	339	58	343	6	346	45	351	6	356	52	6	42
	22	339	40	342	15	345	10	348	29	352	23	357	18	3	42
	26	341	52	344	14	346	56	349	57	353	26	357	40	2	45
♒	0	343	47	346	0	348	27	351	13	354	19	357	58	2	20
	4	345	31	347	33	349	46	352	15	355	3	358	14	2	0
	8	347	6	348	56	350	56	353	11	355	41	358	29	1	44
	12	348	31	350	11	351	59	353	59	356	13	358	40	1	30
	16	349	50	351	19	352	56	354	44	356	41	358	51	1	17
	20	351	0	352	20	353	48	355	22	357	6	358	59	1	6
	24	352	6	353	18	354	35	355	58	357	29	359	7	0	56
	28	353	9	354	12	355	18	356	30	357	49	359	14	0	46
♓	2	354	7	355	1	255	58	357	0	358	8	359	21	0	39
	6	355	3	355	49	356	38	357	29	358	26	359	28	0	32
	10	355	56	356	34	357	14	357	57	358	43	359	33	0	26
	14	356	48	357	17	357	50	358	23	358	59	359	40	0	20
	18	357	36	357	58	358	22	358	48	359	15	359	45	0	15
	22	358	25	358	39	358	55	350	13	250	20	350	50	0	11
	26	359	14	359	21	359	28	359	37	359	45	359	56	0	5
	30	360	0	360	0	360	0	360	0	360	0	360	0	0	0

Tabula Aſcenſionum obliquarum Eclipticæ ad Latitudinem gr. 51. 32′ LONDINI.

♈	♉	♊	♋	♌	♍
Gr. ′ ″	Gr. ′ ″	Gr. ′ ″	Gr. ′ ″	Gr. ′ ″	Gr. ′ ″
0 0	13 2 28	30 10 40	56 46 27	94 34 26	137 15 2
24 52	13 31 11	31 52 51	57 51 19	95 57 37	138 41 1
49 45	14 0 11	31 35 43	58 58 58	97 21 8	140 6 58
14 39	14 29 29	32 19 13	60 6 25	98 44 44	141 32 54
39 34	14 59 2	33 3 28	61 14 40	100 8 55	142 58 49
4 31	15 28 55	33 48 23	62 23 40	101 33 8	144 24 39
29 31	15 59 5	34 34 1	63 33 30	102 57 36	145 50 29
54 32	16 29 36	35 20 16	64 44 2	104 22 14	147 16 16
19 39	17 0 29	36 7 30	65 55 19	105 47 5	148 42 1
44 48	17 31 41	37 55 21	67 7 18	107 12 6	150 7 44
10 1	18 3 15	37 43 56	68 20 0	108 37 16	151 33 22
35 18	18 35 11	38 33 19	69 33 24	110 2 34	152 59 2
0 41	19 7 32	39 23 27	70 47 27	111 28 0	154 24 37
26 10	19 40 16	40 14 23	72 2 12	112 53 32	155 50 10
51 44	20 13 25	41 6 7	73 17 34	114 19 9	157 15 40
17 26	20 46 59	41 58 39	74 33 33	115 44 53	158 41 8
43 16	21 20 59	42 52 0	75 50 9	117 10 41	160 6 34
9 14	21 55 28	43 46 10	77 7 19	118 36 32	161 31 58
35 19	22 30 22	44 41 9	78 25 3	120 2 28	162 57 19
1 34	23 5 46	45 36 58	79 43 21	121 28 27	164 22 37
27 57	23 41 40	46 33 36	81 2 8	122 54 29	165 47 57
54 32	24 18 4	47 31 6	82 21 27	124 20 31	167 13 13
21 15	24 54 59	48 29 27	83 41 14	125 46 35	168 38 29
48 10	25 32 26	49 28 38	85 1 21	127 12 38	170 3 42
10 15 17	26 10 26	50 28 40	86 22 11	128 38 45	171 28 57
10 42 35	26 48 58	51 29 30	87 43 19	130 4 49	172 54 9
11 10 7	27 28 7	52 31 16	89 4 50	131 30 52	174 19 20
11 37 50	28 7 50	53 33 49	90 26 41	132 56 57	175 44 31
12 5 48	28 48 10	54 37 12	91 48 57	134 22 59	177 9 41
12 34 1	29 29 5	55 41 24	93 11 31	135 49 1	178 34 50
13 2 28	30 10 40	56 46 27	94 34 26	137 15 2	180 0 0

Tabula Aſcenſionum obliquarum Eclipticæ ad Latitudinem gr. 51. 32′ LONDINI.

Grad.	♎ Gr. ′ ″	♏ Gr. ′ ″	♐ Gr. ′ ″	♑ Gr. ′ ″	♒ Gr. ′ ″	♓ Gr. ′ ″
0	180 0 0	222 44 58	265 25 34	303 13 33	329 49 20	346 57 32
2	181 25 10	224 10 59	266 48 29	304 18 36	330 30 55	347 25 59
2	182 50 19	225 37 1	268 11 3	305 22 48	331 11 50	347 54 12
3	184 15 29	227 3 3	269 33 19	306 26 11	331 52 10	348 22 10
4	185 40 40	228 29 8	270 55 10	307 28 44	332 31 53	348 49 53
5	187 5 51	229 55 12	272 16 41	308 30 30	333 11 2	349 17 25
6	188 31 3	231 21 16	273 37 49	309 31 20	333 49 34	349 44 43
7	189 56 18	232 47 21	274 58 39	310 31 22	334 27 34	350 11 50
8	191 21 31	234 13 15	276 18 46	311 30 33	335 5 1	350 38 45
9	192 46 47	235 39 29	277 38 33	312 28 54	335 41 56	351 5 28
10	194 12 3	237 5 31	278 57 52	313 26 24	336 18 20	351 32 3
11	195 37 23	238 31 33	280 16 39	314 23 2	336 54 14	351 58 26
12	197 2 41	239 57 32	281 34 57	315 18 51	337 29 38	352 24 41
13	198 28 2	241 23 28	282 52 41	316 13 50	338 4 32	352 50 46
14	199 53 26	242 49 19	284 9 51	317 8 0	338 39 1	353 16 44
15	201 18 52	244 15 7	285 26 27	318 1 21	339 13 1	353 42 34
16	202 44 20	245 40 51	286 42 26	318 53 53	339 46 35	354 8 16
17	204 9 50	247 6 28	287 57 48	319 45 37	340 19 44	354 33 50
18	205 35 23	248 32 0	289 12 33	320 36 33	340 52 28	354 59 19
19	207 0 58	249 57 26	290 26 36	321 26 41	341 24 49	355 24 42
20	208 26 38	251 22 44	291 42 0	312 16 4	341 56 45	355 49 59
21	209 52 16	252 47 54	292 52 41	323 4 39	342 28 19	356 15 12
22	211 17 59	254 12 55	294 4 41	323 52 30	342 59 31	356 40 21
23	212 43 44	255 37 46	295 15 58	324 39 44	343 30 24	357 5 28
24	214 9 31	257 2 24	296 26 30	325 25 59	344 0 55	357 30 29
25	215 35 21	258 26 52	257 36 20	326 11 37	344 31 5	357 55 29
26	217 1 11	259 51 5	298 45 20	326 46 32	345 0 58	358 20 26
27	218 27 6	261 15 16	299 53 35	327 40 47	345 30 31	358 45 21
28	219 53 2	262 38 52	301 1 2	328 24 17	445 59 49	359 10 15
29	221 18 59	264 2 23	302 8 41	329 7 9	346 28 49	359 34 8
30	222 44 58	265 25 34	303 13 33	329 49 20	346 57 32	360 0 0

Tabula Differentiarum Aſcenſionalium.

Declinatio	Altitudo Poli.																				
	68		69		70		71		72		73		74		75		76		77		
	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1	2	25	2	36	2	45	2	54	3	5	3	16	3	29	3	44	4	1	4	20	
2	4	58	5	13	5	30	5	49	6	10	6	34	7	0	7	29	8	3	8	42	
3	7	27	7	51	8	17	8	45	9	17	9	52	10	32	11	17	12	8	13	7	
4	9	58	10	30	11	5	11	43	12	26	13	13	14	7	15	8	16	17	17	38	
5	12	30	13	10	13	54	14	43	15	37	16	38	17	46	19	3	20	32	22	16	
6	15	5	15	54	16	47	17	46	18	52	20	7	21	30	23	6	24	56	27	5	
7	17	42	18	39	19	43	20	53	22	12	23	41	25	21	27	16	29	30	32	8	
8	20	21	21	29	22	43	24	5	25	38	27	22	29	21	31	38	34	19	37	30	
9	23	5	24	22	25	48	27	23	29	10	31	12	33	32	36	14	39	26	43	19	
10	25	53	27	21	28	59	30	48	32	52	35	13	37	57	41	9	45	1	49	48	
11	28	46	30	35	32	17	34	22	36	45	39	29	42	41	46	31	51	14	57	21	
12	31	45	33	37	35	44	38	7	40	51	44	3	47	51	52	30	58	29	67	2	
13	34	51	36	58	39	32	42	6	45	17	49	2	53	33	59	30	67	49	90	0	
14	38	6	40	30	43	14	46	24	50	7	54	38	60	24	68	31	90	0			
15	41	33	44	16	47	24	51	6	55	33	61	13	69	8	90	0					
16	45	13	48	20	51	59	56	23	61	57	69	42	90	0							
17	49	11	52	48	57	8	62	37	70	23	90	0									
18	53	32	57	50	63	13	70	40	90	0											
19	58	28	63	46	71	6	90	0													
20	64	16	71	28	90	0															
21	71	50	90	0																	
22	90	0																			

Tabula Differentiarum Aſcenſionalium.

Declinatio	Altitudo Poli.																			
	78		79		80		81		82		83		84		85		86		87	
	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	4	43	5	9	5	41	6	15	7	0	8	15	9	30	11	30	14	30	19	45
2	9	27	10	22	11	25	12	45	14	15	17	0	19	45	23	45	30	0	43	30
3	14	16	15	38	17	17	19	0	22	0	26	30	30	15	37	15	50	15	90	0
4	19	12	21	5	23	22	26	0	30	0	36	0	42	0	54	15	90	0		
5	24	18	26	45	29	45	33	15	38	15	47	0	57	15	90	0				
6	29	38	32	44	36	35	41	30	48	30	59	30	90	0						
7	35	17	39	10	44	8	51	0	61	0	90	0								
8	41	23	46	18	52	51	62	32	90	0										
9	48	10	54	34	63	55	90	0												
10	56	3	65	7	90	0														
11	66	8	90	0																
12	90	0																		

Declinatio	Altitudo Poli.					
	88		89		90	
	gr.	′	gr.	′	gr.	′
1	30	30	90	0	90	0
2	90	0				

Tabula anguli Orientis, ſeu Altitudinis Nonageſimi.

Qua Scala tranſit, Zonæ Torridæ fines ſunt.

1	2	3	4	5	6	7	8	9	10	11	Borei
p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	
65 ſs	64 ſſ	63 ſs	62 ſſ	61 ſſ	60 ſſ	59 ss	58 ſſ	57 ſs	56 ſs	55 ſſ	30
65 ſs	64 ſſ	63 ſs	62 ſs	61 ſſ	60 ſſ	59 ss	58 ſſ	57 ſs	56 ſs	55 ſſ	27
65 p	64 p	63 p	63 p	61 p	60 p	59 p	58 p	57 p	56 p	55 p	24
65 d	64 d	63 d	62 d	61 d	60 d	59 d	58 d	57 d	56 d	55 d	21
65 e	64 e	63 e	62 e	61 e	60 e	59 e	58 e	57 e	56 e	55 e	18
65 ſ	65 f	64 ſ	63 ſ	62 ſ	61 ſ	60 r	59 ſ	58 ſ	57 ſ	56 ſ	15
66 ſs	65 ss	64 ſs	63 ſſ	62 ſs	61 ſs	60 ſſ	59 n	58 n	57 n	56 n	12
66 c	65 e	64 c	63 c	62 c	61 e	60 e	59 d	58 d	57 d	56 d	9
67 t	66 q	65 q	64 q	63 q	62 q	61 q	60 ſ	59 ſ	58 ſ	57 ſ	6
67 d	66 d	65 d	64 d	63 d	62 b	61 b	60 b	59 b	58 b	57 b	3
68 t	67 t	66 t	65 q	64 q	63 q	62 ſ	61 s	60 ſ	59 ſ	58 s	0 ♓
68 e	67 e	66 e	65 e	64 e	63 c	62 d	61 d	60 d	59 d	58 d	27
69 p	68 p	67 ſr	60 ſs	65 ſſ	64 u	63 n	62 n	61 t	60 t	59 q	24
70 q	69 q	68 s	67 ſ	66 ſ	65 n	64 u	63 u	62	61	59 e	21
71	70	69	67 e	66 e	65 e	64 d	63 d	62 d	61 b	60 b	18
71 c	70 c	69 d	68 d	67 b	66 p	65 p	64 ſs	63 ſr	62 n	61 n	15
72 d	71 b	70 p	69 p	68 ss	67 n	66 n	65 t	64 t	63 q	62 q	12
72 b	72 p	71 ſs	70 ſs	69 n	68 t	67 r	66 q	65 q	64 ſ	63 u	9
74 p	73 p	72 ſr	71 n	70 r	69 t	68 q	67 i	66 s	65 u	64	6
75 p	74 p	73 ſſ	72 n	71 t	70 t	69 q	68 ſ	67 v	66 u	65	3
76 h	75 p	74 ſs	73 n	72 n	71 t	70 q	69 ſ	68 u	67 u	66	0 ♒
77 d	76 b	75 p	74 ſr	73 ss	72 n	71 t	70 q	69 ſ	68 u	67 u	27
78 c	77 c	76 d	75 b	74 b	73 p	72 n	71 t	70 q	69 q	68 s	24
80 v	79	77 c	76 c	75 d	74 b	73 p	72 ſſ	71 n	70 r	69 q	21
81 q	80 s	79 u	78	76 c	75 c	74 d	73 b	72 p	71 ſr	70 n	18
82 ſs	81 n	80 t	79 q	78 ſ	77 u	76	74 e	73 c	72 b	71 p	15
83 d	82 b	81 p	80 ſſ	79 u	78 t	77 q	76 n	75 u	73 c	72 o	12
85	83 e	82 c	81 d	80 b	79 p	78 ſſ	77 n	76 t	75 q	74 ſ	9
86 t	85 q	84 ſ	83 u	81 e	80 c	79 d	78 b	77 p	76 ſs	75 n	6
87 p	86 ſr	85 n	84 t	83 q	82 ſ	81 u	80	78 e	77 d	76 b	3
88 c	87 c	86 d	85 b	84 ſr	82 n	82 r	81 q	80 ſ	79 u	78	0 ♑
1	2	3	4	5	6	7	8	9	10	11	Borei

Tabula anguli Orientis, ſeu Altitudinis Nonageſimi.

Q[illegible]a Scala tranſit, Zonæ Torridæ fines ſunt.

Alti-	1	2	3	4	5	6	7	8	9	10	11	tudo.
Grad	p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	Grad
♋ 0	88 c	87 c	80 d	85 b	84 ſs	83 u	82 t	81 q	80 s	79 v	78	0 ♑
3	89 d	89 v	88	86 c	85 c	84 d	83 b	82 p	81 ſs	80 n	79 t	27
6	88 ſſ	89 p	89 t	88 q	87 ſ	86 v	85	83 c	82 d	81 d	80 p	24
9	87 s	88 q	89 t	89 ſs	88 n	87 n	86 q	85 ſ	84 v	82 c	81 c	21
12	85 c	87	88 v	89 ſ	89 d	88 p	87 p	86 n	85 t	84 q	83 s	18
15	84 b	85 d	86 c	87 c	80	89 c	88 c	87 d	86 b	85 p	84 ſs	15
18	83 n	84 ſſ	85 p	86 b	87 d	88 c	89 c	89	87 c	86 c	85 d	12
21	82 s	83 q	84 t	85 n	86 ſs	87 p	88 d	89 d	89 s	88 v	87	9
24	81 v	82 v	83 ſ	84 q	85 t	86 n	87 ſs	88 p	89 b	89 t	88 q	6
27	79 c	81	82	83 v	84 s	85 q	86 t	87 n	88 n	89 ſ	89 n	3
♌ 0	78 d	79 c	80 c	82	83 v	84 v	85 s	86 q	87 t	88 n	89 n	0 ♐
3	77 b	78 d	79 c	80 c	82	83	84 v	85 ſ	86 q	87 t	88 t	27
6	76 b	77 d	78 c	79 c	80 c	82	83	84 v	85 s	86 q	87 t	24
9	75 d	76 d	77 c	78 c	79 c	81	82 v	83 v	84 s	85 s	86 q	21
12	74 c	75 c	76 c	77 c	79	80 v	81 v	82 s	83 s	84 q	85 c	18
15	73 c	75	76	77 v	78 v	79 ſ	80 ſ	81 q	82 q	83 t	84 n	15
18	73 v	74 s	75 ſ	76 q	77 q	78 t	79 t	80 n	81 n	82 n	83 ſs	12
21	72 t	73 t	74 n	75 n	76 ſs	77 ſs	78 p	79 p	80 p	81 b	82 b	9
24	71 p	72 b	73 b	74 d	75 d	76 d	77 c	78 c	79 c	80 c	81 c	6
27	71	72	73	74 v	75 v	76 v	77 ſ	78 s	79 s	80 s	81 q	3
♍ 0	70 n	71 n	72 n	73 n	74 n	75 ſs	76 ſs	77 ſs	78 ſs	79 p	80 p	0 ♏
3	69 c	70 c	71 c	72 c	73 c	74 c	75 c	76 c	77 c	78 c	79	27
6	69 t	70 t	71 t	72 n	73 n	74 n	75 n	76 n	77 n	78 n	79 n	24
9	68 c	69 c	70 c	71 c	72 c	73 c	74 c	76	77	78	79	21
12	68 ſſ	69 ſs	70 ſſ	71 p	72 p	73 ſs	74 p	75 p	76 p	77 p	78 p	18
15	68 ſ	69 q	70 q	71 q	72 q	73 q	74 q	75 q	76 q	77 q	78 q	15
18	67 c	68 c	69 c	71	72	73	74	75	76	77	78	12
21	67 d	68 d	69 d	70 d	71 d	72 d	73 d	74 d	75 d	76 d	77 d	9
24	67 p	68 p	69 p	70 p	71 p	72 p	73 p	74 p	75 p	76 p	77 p	6
27	67 ſs	68 ſs	69 ſs	70 ſs	71 ſs	72 ſs	73 ſs	74 ſs	75 ſs	76 ſs	77 ſſ	3
♎ 0	67 ſs	68 ſs	69 ſs	70 ſs	71 ſs	72 ſs	72 ſs	74 ſs	75 ſs	76 ſs	77 ſs	0 ♎
Alti-	1	2	3	4	5	6	7	8	9	10	11	tudo.
Ab Ortu.	♋ 27 30 ♐ 2 30	♋ 24 59 ♐ 5 1	♋ 22 28 ♐ 7 32	♋ 19 56 ♐ 10 4	♋ 17 23 ♐ 12 37	♋ 14 49 ♐ 15 11	♋ 12 13 ♐ 17 47	♋ 9 35 ♐ 20 55	♋ 6 55 ♐ 23 5	♋ 4 13 ♐ 25 47	♋ 1 24 ♐ 28 36	Ad Ortum

Tabula anguli Orientis, ſeu Altitudinis Nonageſimi.

Qua Scala tranſit, Zonæ Torridæ fines ſunt.

12	13	14	15	16	17	18	19	20	21	22	23	Borei
a	p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	♈
ſs	53 ſs	52 ſs	51 ſs	50 ſs	49 ſs	48 ſs	47 ſs	46 ſs	45 ſs	44 ſs	43 ſs	30
ſs	53 ſs	52 ſs	51 ſs	50 ſs	49 ſs	48 ſs	47 ſs	46 ſs	45 ſs	44 ſs	42 ſs	27
p	53 p	52 p	51 p	50 p	49 p	48 p	47 p	46 p	45 p	44 p	43 p	24
d	53 d	52 d	51 d	50 b	49 b	48 b	47 b	46 b	45 b	44 b	43 b	21
e	53 e	52 e	51 e	50 e	49 e	48 e	47 e	46 e	44 e	44 e	43 e	18
ſ	54 s	53 v	52 v	51 v	50 v	49 v	48 v	47 v	46 v	45 v	44 v	15
n	54 n	53 n	52 n	51 n	50 n	49 n	48 ı	47 ı	46 ı	45 ı	44 ı	12
d	54 d	53 d	52 d	51 d	50 b	49 b	48 b	47 b	46 b	45 b	44 b	9
s	55 s	54 v	53 v	52 v	51 v	50 v	49 v	48 v	47	46	45	6
p	55 p	54 p	53 p	52 ſs	51 ſs	50 ſs	49 ſs	48 n	47 n	46 n	45 n	3
v	56 v	55 v	54	53	52	51	49 c	48 e	47 e	46 e	45 e	0 ♓
b	56 b	55 p	54 p	53 p	52 ſs	51 ſs	50 ſs	49 n	48 n	47 n	46 n	27
q	57 q	56 s	55 s	54 s	53 v	52 v	51 v	50	49	48	46 e	24
e	57 c	56 e	55 e	54 d	53 d	52 b	51 b	50 b	49 p	48 p	47 ſs	21
p	58 p	57 ſs	56 ſs	55 n	54 ı	53 n	52 t	51 q	50 q	49 ı	48 ſ	18
n	59 t	58 q	57 q	56 s	55 v	54 v	53 v	52	50 e	49 e	48 c	15
s	60 s	59 v	58	56 e	55 e	54 e	53 e	52 d	51 b	50 b	49 p	12
v	61	59 e	58 e	57 e	56 d	55 d	54 b	53 p	52 ſs	51 ſs	50 n	9
	61 e	60 c	59 c	58 d	57 d	56 p	55 ſs	54 ſs	53 n	52 ı	51 ı	6
e	62 e	61 c	60 d	59 b	58 b	57 ſs	56 n	55 n	54 ı	53 q	52 s	3
e	63 e	62 d	61 b	60 b	59 p	58 ſs	57 n	56 ı	55 q	54 s	53 v	0 ♒
	64 e	63 e	62 d	61 b	60 p	59 ſs	58 n	57 t	56 p	55 s	54 u	27
v	66	64 e	63 e	62 d	61 b	60 p	59 ſs	58 n	57 t	56 q	55 s	24
s	67 v	66	64 e	63 e	62 d	61 b	60 p	59 ſs	58 n	57 ı	56 q	21
t	68 q	67 s	66 v	65	63 e	62 c	61 d	60 b	59 p	58 n	57 ı	18
ſſ	69 ss	68 ı	67 q	66 s	65 v	64	62 e	61 e	60 d	59 p	58 ſs	15
d	70 b	69 p	68 ſs	67 n	66 ı	65 q	64 s	63	61 e	60 e	59 d	12
	71 e	70 e	69 d	68 b	67 p	66 ſs	65 ı	64 q	63 s	62 v	60 e	9
ı	73 q	72 v	71	69 d	68 e	67 d	66 b	65 ſs	64 n	63 t	62 q	6
p	74 ſs	72 n	72 ı	71 q	70 v	69	67 e	66 e	65 b	64 p	63 ſs	3
e	75 e	74 b	73 p	72 ſs	71 n	70 t	69 s	68 v	67	65 e	64 d	0 ♑
12	13	14	15	16	17	18	19	20	21	22	23	Borei

Partes Aſſis. {v 5, ſ 10} {q 15, ı 20} {n 25, ſs 30} {p 35, b 40} {d 45, c 50} {e 55, 60}

Tabula anguli Orientis, ſeu Altitudinis Nonageſimi.

Qua Scala tranſit, Zonæ Torridæ fines ſunt.

Alti-	12	13	14	15	16	17	18	19	20	21	22	23	tudo.
Grad	p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	
♋ 0	76 c	75 c	74 b	73 p	72 ſs	71 n	70 t	69 s	68 v	67	65 c	64 d	0 ♑
3	78 s	77 v	76	74 c	73 o	72 d	71 p	70 ſs	69 n	68 t	67 ſ	66 v	27
6	79 ſs	78 n	77 t	76 q	75 s	74	73 e	71 c	70 d	69 b	68 ſs	67 n	24
9	80 c	79 d	78 b	77 p	76 n	75 t	74 q	73 s	72 v	70 c	69 c	68 d	21
12	82 v	81	79 e	78 c	77 d	76 b	75 p	74 n	73 t	72 q	71 s	70 v	18
15	83 n	8[illegible] q	81 s	80 v	79	77 e	76 e	75 d	74 b	73 p	72 ſs	71 t	15
18	84 b	85 p	82 ſs	81 n	80 t	79 q	78 v	77	75 e	74 c	73 d	72 b	12
21	85 e	84 e	83	82 b	81 p	80 ſs	79 n	78 t	77 q	76 s	75 v	74	9
24	8[illegible] s	86 v	8[illegible]	83 e	82 c	81 d	80 b	79 n	78 ſs	77 n	76 t	75 q	6
27	88 t	87 q	86 s	85 v	84	82 c	81 c	80 d	79 b	78 b	77 p	76 ſs	3
♌ 0	89 ſs	88 n	87 t	86 q	85 s	84 ſ	83 v	82	80 e	79 e	78 d	77 b	0 ♐
3	89 n	89 p	88 ſs	87 n	86 t	85 q	84 s	83 v	82 v	81	79	78 e	27
6	88 t	89 t	89 p	88 ſs	87 n	86 t	85 q	84 q	83 v	82 v	81 e	80	24
9	87 t	88 t	89 n	89 ſs	88 ſs	87 n	86 t	85 q	84 q	83 s	82 v	81 v	21
12	86 t	87 n	88 n	89 ſs	89 n	88 n	87 t	86 t	85 q	84 s	82 s	82 v	18
15	85 n	86 ſs	87 ſt	88 p	89 b	89 t	88 q	87 q	86 q	85 s	84 v	83 v	15
18	84 p	85 p	86 b	87 b	88 d	89 d	89 q	88 s	87 s	86 v	85 v	84	12
21	83 b	84 d	85 d	86 e	87 e	88 e	89 e	89 v	88	87	85 e	84 e	9
24	83	84	85	86 v	87	88 v	89 ſ	89 e	88 e	87 d	86 d	85 b	6
27	82 q	83 q	84	85 t	86 t	87 n	88 n	89 n	89 p	88 ſs	87 ſs	86 n	3
♍ 0	81 p	82 p	83 b	84 b	85 b	86 d	87 d	88 d	89 d	89 s	88 s	87 ſ	0 ♏
3	81	82	83	84 v	85 v	80 v	87 s	88 s	89 s	89 e	88 e	87 d	27
6	80 n	81 ſs	82 ſs	83 ſs	84 ſs	85 p	86 p	87 p	88 p	89 p	89 n	88 t	24
9	80	81	82	83	84 v	85 v	86 v	87 v	88 v	89 v	89 e	88 e	21
12	79 p	80 p	81 p	82 b	83 b	84 b	85 b	86 b	87 b	88 b	89 b	89 q	18
15	79 q	80 q	81 q	82 t	83 t	84 t	85 t	86 t	87 t	88 t	89 t	89 b	15
18	79	80	81	82	83	84	85	86	87	88	89	89 e	12
21	78 d	79 d	80 d	81 d	82 d	83 d	84 d	85 d	86 d	87 d	88 d	89 d	9
24	78 b	79 b	80 b	81 b	82 b	83 b	84 b	85 b	86 b	87 b	88 b	89 b	6
27	78 ſs	79 ſs	80 ſs	81 ſs	82 ſs	83 ſs	84 ſs	85 ſs	86 ſs	87 ſs	88 ſs	89 ſs	3
0	78 ſs	79 ſs	80 ſs	81 ſs	82 ſs	83 ſs	84 ſs	85 ſs	86 ſs	87 ſs	88 ſs	89 ſs	0 ♎
Alti-	12	13	14	15	16	17	18	19	20	25	22	23	tudo.
Ab Ortu.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Ad Ortum

Nonageſimus vergit in Boream, reſiduo Eclipticæ, quod eſt ſupra Scalam, Oriente, in Auſtrum.

Tabula anguli Orientis, ſeu Altitudinis Nonageſimi.

Nonageſimi ex Aſcendente Semicirculo ſtant in Quadrante Orientali, & ad Auſtrum.

23 ſs	24	25	26	27	28	29	30	31	32	33	34	Borei
p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	Grad
43	42 ſs	41 ſs	40 ſs	39 ſs	38 ſs	37 ſs	36 ſs	35 ſs	34 ſs	33 ſs	32 ſs	30
43	42 ſs	41 ſs	40 ſs	39 ſs	38 ſs	37 ſs	36 ſs	35 ſs	34 ſs	33 ſs	32 ſs	27
43 v	42 p	41 p	40 p	39 p	38 p	37 p	36 p	35 p	34 p	33 p	32 p	24
43 s	42 b	41 b	40 b	39 b	38 b	37 b	36 b	35 b	34 b	33 b	32 b	21
43 t	42 c	41 c	40 c	39 c	38 c	37 c	36 c	35 c	34 c	33 c	32 c	18
43 p	43 v	42 v	41 u	40 v	39 v	38	37	36	35	34	33	15
43 c	43 t	42 t	41 t	40 t	39 t	38 q	37 q	36 q	35 q	34 q	33 q	12
44 v	43 p	42 p	41 p	40 p	39 p	38 p	37 p	36 p	35 ſs	34 ſs	33 ſs	9
44 n	43 e	42 e	41 e	40 e	39 c	38 c	37 c	36 c	35 c	34 c	33 c	6
44 c	44 t	43 t	42 t	41 t	40 q	39 q	38 q	37 q	36 s	35 s	34 s	3
45 t	44 c	43 c	42 d	41 d	40 d	39 b	38 b	37 b	36 p	35 p	34 p	0 ♓
45 c	45 i	44 t	43 q	42 q	41 s	40 s	39 s	38 v	37 v	36	35	27
46 n	45 c	44 c	43 c	42 d	41 d	40 b	39 b	38 p	37 p	36 ſs	35 ſs	24
47	46 n	45 n	44 n	43 t	42 t	41 q	40 q	39 s	38 s	37 v	36	21
47 p	47 v	46 v	45	43 c	42 e	41 c	40 c	39 d	38 d	37 b	36 p	18
48 q	47 c	46 d	45 b	44 p	43 p	42 ſs	41 ſs	40 n	39 n	38 t	37 q	15
49 v	48 ſs	47 ſs	46 n	45 t	44 q	43 q	42 s	41 s	40 v	39	37 e	12
49 c	49 i	48 t	47 q	46 s	45 v	44	42 c	41 c	40 d	39 d	38 b	9
50 d	50 q	49 ſ	48 v	47 c	45 c	44 c	43 d	42 b	41 p	40 ſs	39 n	6
51 p	51 v	50	48 c	47 d	46 b	45 b	44 p	43 ſs	42 n	41 t	40 q	3
52 ſs	52	50 e	49 c	48 d	47 b	46 p	45 ſs	44 t	43 i	42 q	41 s	0 ♒
53 ſs	53	51 c	50 c	49 c	48 b	47 p	46 ſs	45 n	44 q	43 s	42 v	27
54 p	54 v	53	51 e	50 c	49 b	48 p	47 ſs	46 t	45 q	44 s	43 v	24
55 b	55 s	54 v	52 e	51	50 d	49 b	48 ſs	47 n	46 t	45 q	44 v	21
56 c	56 q	55 s	54 v	53	51 c	50 d	49 b	48 ſs	47 n	46 q	45 s	18
58	57 ſs	56 t	55 q	54	53	51 c	50 d	49 b	48 ſs	47 n	46 q	15
59 s	58 b	57 ſs	56 n	55 q	54 s	53 v	51 e	50	49 b	48 p	47 n	12
60 t	59 c	58 d	57 p	56 ſs	55 n	54 q	53 s	52 c	50 c	49 d	48 p	9
61 p	61 v	60	58 c	57 d	56 p	55 ſs	54 n	53 q	52 s	51	49 c	6
62 c	62 t	61 q	60 s	59	57 e	56 d	55 b	54 ſs	53 n	52 q	51 v	3
64 s	63 d	62 p	61 n	60 t	59 s	58 v	57	55 c	54 b	53 p	52 n	0 ♑
23 ſs	24	25	26	27	28	29	30	31	32	33	34	Borei

Nonageſimi ex deſcendente Semicirculo ſtant in Quadrante occiduo, & ad Auſtrum.

VII. Parallelus II. Clima.	VIII. Parallelus.	IX. Parallelus III. Clima.	X.

Tabula anguli Orientis, ſeu Altitudinis Nonageſimi.

Nonageſimi ex Aſcendente Semicirculo ſtant in Quadrante Orientali, & ad Auſtrum.

Grad	23 ſs	24	25	26	27	28	29	30	31	32	33	34	Grad
Grad.	p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	
♋ 0	64 s	63 d	62 p	61 n	60 t	59 s	58 v	57	55 c	54 b	53 p	52 u	0 ♑
3	65 ſs	65	63 c	62 d	61 b	60 ſs	59 n	58 q	57 ſ	56	54 e	53 d	27
6	66 c	66 t	65 s	64 v	63	61 c	60 d	59 p	58 ſs	57 t	56 s	55 v	24
9	68 s	67 p	66 ſs	65 n	64 q	63 s	62 v	60 e	59 c	58 b	57 p	56 n	21
12	69 ſs	68 e	67 e	66 d	65 p	64 ſs	63 n	62 q	61 s	60	58 c	57 d	18
15	70 d	70 q	69 s	68 v	66 c	65 c	64 d	63 p	62 ſs	61 t	60 q	59 v	15
18	72 v	71 p	70 ſs	69 n	68 q	67 s	66 v	64 e	63 c	62 b	61 p	60 ſs	12
21	73 n	72 c	71 d	70 b	69 e	68 ſs	67 t	66 q	65 z	64 v	62 e	61 e	9
24	74 b	74 s	73 v	71 c	70 p	69 d	68 b	67 p	66 n	65 t	64 q	63 v	6
27	75 e	75 n	74 q	73 q	72 s	71	69 e	68 c	67 d	66 b	65 ſs	64 u	3
♌ 0	77 v	76 p	75 ſs	74 n	73 t	72 q	71 s	70 v	69	67 e	66 c	65 b	0 ♐
3	78 q	77 d	76 d	75 b	74 ſs	73 n	72 t	71 q	70 s	69 v	68	66 e	27
6	79 s	78 e	77 c	76 d	75 b	74 p	73 ſs	72 ſs	71 n	70 t	69 q	68 s	24
9	80 ſs	80	78 e	77 c	76 c	75 d	74 b	73 p	72 ſs	71 n	70 n	69 t	21
12	81 p	81	80	78 c	77 e	76 d	75 d	74 b	73 p	72 ſs	71 ſs	70 n	18
15	82 ſs	82	81	79 c	78 c	77 c	76 d	75 b	74 p	73 p	72 ſs	71 n	15
18	83 ſſ	83	81 c	80 e	79 c	78 b	77 d	76 b	75 p	74 b	73 ſs	72 n	12
21	84 t	83 c	82 c	81 d	80 d	79 d	78 b	77 p	76 ſs	75 ſs	74 n	73 n	9
24	85 s	84 b	83 p	82 p	81 p	80 ſs	79 ss	78 n	77 n	76 t	75 t	74 q	6
27	85 e	85 n	84 n	83 t	82 t	81 t	80 q	79 q	78 s	77 s	76 s	75 v	3
♍ 0	86 p	85 s	85 v	84 v	83 v	82	81	80	78 c	77 c	75 e	75 c	0 ♏
3	87 q	86 d	85 d	84 b	83 b	82 b	81 b	80 b	79 p	78 p	77 p	76 p	27
6	87 e	87 t	86 t	85 q	84 q	83 q	82 q	81 q	80 q	79 s	78 s	77 s	24
9	88 t	87 e	86 c	85 c	84 c	83 c	82 d	81 d	80 d	79 d	78 d	77 b	21
12	88 q	87 q	86 q	85 q	84 q	84 q	82 q	82 q	81 q	80 q	79 s	78 s	18
15	89 s	88 p	87 b	86 p	85 p	84 p	83 d	82 b	81 p	80 p	79 p	78 p	15
18	89 n	88 c	87 c	86 c	85 c	84 e	82 p	82 e	81 e	80 e	79 e	78 e	12
21	89 b	89 q	88 q	87 q	86 q	85 q	84 e	83 s	82 s	81 s	80 s	79 s	9
24	89 e	89 t	88 t	87 t	86 t	85 t	84 s	83 t	82 t	81 t	80 t	79 t	6
27	89 e	89 ſs	88 ſſ	87 ſs	85 ſs	85 ſs	84 ſs	83 ſs	82 ſs	81 ſs	80 ſs	79 ſs	3
♎ 0	90 0	89 ſs	88 ſs	87 ſs	86 ſs	85 ſs	84 ſs	82 ſs	82 ſs	81 ſs	80 ſs	79 ſs	0 ♎
Alti-	23 ſs	24	25	26	27	28	29	30	31	32	33	34	tudo.

Nonageſimi ex deſcendente Semicirculo ſtant in Quadrante occiduo, & ad Auſtrum.

VII. Parallelus II. Clima.	VIII. Parallelus.	IX. Parallelus III. Clima.	X.

Tabula anguli Orientis, ſeu Altitudinis Nonageſimi.

…onageſimi ex Aſcendente Semicirculo ſtant in Quadrante Orientali, & ad Auſtrum.

	36	37	38	39	40	41	42	43	44	45	46	Borei
a	p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	Grad
ſs	30 ſs	29 ſs	28 ſs	27 ſs	26 ſs	25 ſs	24 ſs	23 ſs	22 ſs	21 ſs	20 ſs	30
ſs	30 ſs	29 ſs	28 ſs	27 ſs	26 ſs	25 ſs	24 ſs	23 ſs	22 ſs	21 ſs	20 ſs	27
p / b	30 p / 30 b	29 p / 29 b	28 p / 28 b	27 p / 27 b	26 p / 26 b	25 p / 25 b	24 p / 24 b	23 p / 23 b	22 p / 22 b	21 p / 21 b	20 p / 20 p	24 / 21
c	30 c	29 c	28 d	27 d	26 d	25 d	24 d	23 d	22 d	21 d	20 d	18
/ q	31 / 31 s	30 / 30 s	29 / 29 s	28 / 28 s	26 c / 27 s	25 c / 26 s	24 c / 25 v	23 c / 24 v	22 c / 23 v	21 c / 22 v	20 c / 21 v	15 / 12
ſs	31 ſs	30 n	29 n	28 n	27 n	26 n	25 t	24 t	23 t	22 t	21 q	9
d / ſs	31 d / 32 v	30 d / 31 v	29 d / 30	28 b / 29	27 b / 28	26 b / 26 c	25 p / 25 c	24 p / 24 c	23 p / 23 c	22 ſs / 22 c	21 ſs / 21 c	6 / 3
ſs	32 ſs	31 n	30 n	29 n	28 t	27 t	26 q	25 q	24 s	23 s	22 v	0 ♓
/ n	32 c / 33 n	31 c / 32 t	30 c / 31 t	29 c / 30 q	28 d / 29 q	27 d / 28 s	26 b / 27 v	25 b / 26 v	24 p / 25	23 ſs / 23 c	22 ſs / 22 c	27 / 24
	33 c	32 c	31 c	30 d	29 b	28 b	27 p	26 ſs	25 n	24 n	23 t	21
p / s	34 ſſ / 35 v	33 n / 34	32 t / 32 c	31 t / 31 c	30 q / 30 c	29 s / 29 d	28 v / 28 b	27 / 27 p	25 c / 26 ſs	24 c / 25 n	23 c / 24 t	18 / 15
c	35 d	34 b	33 p	32 p	31 ſs	30 t	29 q	28 s	27 v	26	24 c	12
p / t	36 ſs / 37 q	35 n / 36 s	34 t / 35 v	33 q / 33 c	32 s / 32 c	31 / 31 d	29 c / 30 b	28 c / 29 ſs	27 d / 28 n	26 p / 27 t	25 ſs / 26 s	9 / 6
ſs	38 v	37	35 c	34 d	33 b	32 s	31 n	30 t	29 s	28	26 c	3
	38 c / 39 c	37 c / 38 d	36 b / 37 b	35 p / 36 ſs	34 ſs / 35 n	33 t / 34 q	32 q / 33 v	31 v / 32	30 / 30 c	28 c / 29 b	26 b / 28 ſs	0 ♒ / 27
e	40 c	39 b	38 p	37 n	36 t	35 s	34	32 c	31 d	30 p	29 n	24
3 / 4	41 c / 42 c	40 d / 41 d	39 p / 40 p	38 n / 39 ſs	37 t / 38 t	36 s / 37 s	35 / 36	33 c / 34 c	32 b / 33 b	31 ſs / 32 ſs	30 t / 31 t	21 / 18
v	44	42 c	41 b	40 p	39 n	38 q	37 v	35 c	34 d	33 p	32 t	15
6 q / 7 ſs	45 s / 46 t	44 / 45 s	42 c / 44	41 b / 42 c	40 ſs / 41 d	39 t / 40 p	38 s / 39 t	37 / 38 s	35 c / 37	34 b / 35 d	33 n / 34 p	12 / 9
8 d	47 p	46 n	45 q	44 v	42 c	41 d	40 p	39 n	38 q	37	35 d	6
o / 1 q	48 c / 50 s	47 b / 49	46 ſs / 47 c	45 t / 46 b	44 s / 45 ſs	43 / 44 t	41 c / 43 s	40 b / 41 c	39 ſs / 40 d	38 q / 39 ſs	37 / 38 t	3 / 0 ♑
35	36	37	38	39	40	41	42	43	44	45	46	Borei

…nageſimi ex deſcendente Semicirculo ſtant in Quadrante occidentali, & ad Auſtrum.

Paralleli	XI. IV. Clima.	XII.	XIII. V. Clima.	XIV.	XV. VI. Clima.

Tabula anguli Orientis, ſeu Altitudinis Nonageſimi.

Nonageſimi ex Aſcendente Semicirculo ſtant in Quadrante Orientali, & ad Auſtrum.

Alti-	35	36	37	38	39	40	41	42	43	44	45	46	tudo.
Grad	p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	
♋ 0	51 q	50 s	49	47 c	46 b	45 ſs	44 t	43 s	41 c	40 d	39 ſs	38 t	0 ♑
3	52 p	51 n	50 q	49 s	48	46 c	45 b	44 n	43 q	42 v	40 c	39 b	27
6	53 c	52 d	51 b	50 ſs	49	48 s	47	45 c	44 p	43 n	42 s	41	24
9	55 q	54 s	53 t	51 c	50 b	49 ſs	48 t	47 s	46	44 c	43 p	42 t	21
12	56 b	55 ſs	54 t	53 s	52 v	50 c	49 d	48 p	47 n	46 s	45	43 c	18
15	58	56 c	55 t	54 p	52 n	52 q	51 v	49 e	48 d	47 p	46 n	45 s	15
18	59 t	58 q	57 v	55 c	54 d	53 b	52 ſs	51 t	50 s	49	47 c	46 p	12
21	60 b	59 p	58 t	57 t	56 s	55	53 c	52 d	51 v	50 n	49 q	48	9
24	62	60 e	59 t	58 b	57 ſs	56 n	55 q	54 v	52 c	51 d	50 p	49 n	6
27	63 t	62 s	61 v	60	58 c	57 d	56 p	55 n	54 t	53 s	52	50 c	3
♌ 0	64 p	63 ſs	62 n	61 q	60 s	59	57 c	56 c	55 b	54 ſs	53 n	52 q	0 ♐
3	65 c	64 d	63 b	62 ſs	61 n	60 t	59 s	58 v	57	55 c	54 d	53 o	27
6	67 v	66	64 e	63 d	62 b	61 p	60 ſs	59 n	58 q	57 s	56	54 c	24
9	68 q	67 s	66 v	65	63 c	62 c	61 b	60 p	59 ſs	58 n	57 q	56 s	21
12	69 t	68 q	67 s	66 v	65	61 e	62 c	61 d	60 b	59 p	58 ſs	57 t	18
15	70 t	69 t	68 q	67 s	66 v	65	63 c	62 c	61 c	60 b	59 b	58 ſs	15
18	71 n	70 t	69 q	68 s	67 s	66 v	65	63 c	62 c	61 d	60 d	59 b	12
21	72 t	71 t	70 g	60 s	68 s	67 v	66	64 c	63 e	62 c	61 d	60 b	9
24	73 q	72 s	71 s	70 v	69 v	68	65 c	65 c	64 c	63 d	62 d	61 b	6
27	74 v	73	72	70 e	69 e	68 c	67 c	66 d	65 d	64 b	63 b	62 p	3
♍ 0	74 c	73 d	72 d	71 d	70 b	60 b	68 p	67 p	66 p	65 ſs	61 ſs	63 n	0 ♏
3	75 ſs	74 ſs	73 ſs	72 n	71 n	70 n	69 1	68 t	67 q	66 q	65 q	64 s	27
6	76 s	75 s	74 v	73 v	72 v	71	70	69	67 c	66 e	65 e	64 c	24
9	76 b	75 b	74 b	73 b	72 p	71 p	70 p	69 p	68 ſs	67 ſs	66 ſs	65 ſs	21
12	77 s	76 s	75 s	74 s	73 v	72 v	71 v	70 v	69 v	68 v	67	66	18
15	77 p	76 p	75 p	74 p	73 p	72 ſs	71 ſs	70 ſs	69 ſs	68 ſs	67 ſs	66 ſs	15
18	77 e	76 e	75 c	74 c	73 c	72 c	71 e	70 e	69 e	68 c	67 c	66 c	12
21	78 s	77 s	76 s	75 s	74 s	73 s	72 s	71 s	70 s	69 s	68 s	67 s	9
24	78 t	77 t	76 t	75 t	74 t	73 t	72 t	71 t	70 t	69 t	68 t	67 t	6
27	78 ſs	77 ſs	76 ſſ	75 ſs	74 ſs	73 ſs	72 ſs	71 ſs	70 ſs	69 ſs	68 ſs	67 ſs	3
♎ 0	78 ſs	77 ſs	76 ſs	75 ſs	74 ſs	73 ſs	72 ſs	71 ſs	70 ſs	69 ſs	68 ſs	67 ſs	0 ♎
Alti-	35	36	37	38	39	40	41	42	43	44	45	46	tudo.

Nonageſimi ex deſcendente Semicirculo ſtant in Quadrante occiduo, & ad Auſtrum.

Paralleli	XI. IV. Clima.	XII.	XIII. V. Clima.	XIV.	XV. VI. Clima.

Tabula anguli Orientis, ſeu Altitudinis Nonageſimi.

onageſimi ex Aſcendente Semicirculo ſtant in Quadrante Orientali, & ad Auſtrum.

48	49	50	51	52	53	54	55	56	57	58	Borei
p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	Grad
18 ſs	17 ſs	16 ſs	15 ſs	14 ſs	13 ſs	12 ſs	11 ſs	10 ſs	9 ſs	8 ſs	30
18 ſs	17 ſs	16 ſs	15 ſs	14 ſs	13 ſs	12 ſs	11 ſs	10 ſs	9 ſs	8 ſs	27
18 p / 18 p	17 p / 17 p	16 p / 16 p	15 p / 15 p	14 ſs / 14 p	13 ſs / 13 p	12 ſs / 12 p	11 ſs / 11 p	10 ſs / 10 p	9 ſs / 9 p	8 ſs / 8 p	24 / 21
18 d	17 d	16 d	15 d	14 b	13 b	12 b	11 b	10 b	9 b	8 b	18
18 c / 19	17 c / 18	16 c / 17	15 c / 16	14 s / 14 c	13 e / 13 e	12 d / 12 e	11 d / 11 e	10 d / 10 c	9 d / 9 c	8 d / 8 c	15 / 12
19 q	18 s	17 s	16 s	15 s	14 v	13 v	12	11	9 c	8 e	9
19 n / 19 d	18 n / 18 b	17 n / 17 b	16 t / 16 p	15 i / 15 ſs	14 q / 14 ſs	13 q / 13 ſs	12 s / 12 n	11 s / 11 i	10 v / 10 q	9 v / 9 q	6 / 3
20	19	18	16 c	15 c	14 d	13 b	12 b	11 p	10 ſs	9 n	0 ♓
20 t / 20 d	19 t / 19 b	18 q / 18 p	17 q / 17 ſs	16 s / 16 n	15 v / 15 t	14 / 14 q	12 e / 13 s	11 e / 12 v	10 d / 11	9 b / 9 c	27 / 24
21 s	10 v	19	17 e	16 c	15 d	14 p	13 ſs	12 t	11 q	10 v	25
21 p / 22 s	20 ſs / 21	19 n / 19 c	18 t / 18 d	17 q / 17 b	16 s / 16 p	15 / 15 n	13 c / 14 q	12 b / 13 v	11 p / 11 e	10 n / 10 d	18 / 15
22 b	21 ſs	20 n	19 q	18 s	17	15 c	14 b	13 ſs	12 t	11 v	12
23 q / 23 e	22 v / 22 d	21 / 21 p	19 c / 20 n	18 b / 19 q	17 ſs / 16 v	16 t / 16 e	15 s / 15 d	14 / 14 ſs	12 c / 13 q	11 p / 12	9 / 6
24 p	23 n	22 q	21 v	19 e	18 d	17 ſs	16 i	15 v	13 c	12 ſs	3
25 t / 26 s	24 s / 25	23 / 23 d	21 c / 22 p	20 p / 21 t	19 n / 20 v	18 s / 18 e	16 e / 17 p	15 b / 16 t	14 t / 15	13 v / 13 b	0 ♒ / 27
27	25 c	24 p	23 n	22 s	20 c	19 b	18 t	17 v	15 d	14 t	24
27 e / 28 e	26 d / 27 d	25 ſs / 26 n	24 q / 25 s	23 / 23 e	21 d / 22 b	20 ſs / 21 i	29 s / 20	17 c / 18 b	16 ſs / 17 t	15 v / 15 c	21 / 18
29 e	28 b	27 n	26 s	24 e	23 p	22 t	21	19 p	18 q	16 d	15
31 / 32 s	29 d / 30 e	28 ſs / 29 p	27 q / 28 t	25 e / 27 v	24 b / 25 d	23 t / 24 n	21 e / 23	20 p / 21 b	19 s / 20 q	17 d / 18 d	12 / 9
33 t	32 v	30 c	29 ſs	28 q	26 e	25 p	24 s	22 c	21 n	19 e	6
34 p / 35 e	33 t / 34 p	32 v / 33 t	30 d / 32 v	29 ſs / 30 d	28 s / 29 n	26 c / 28 v	25 n / 26 b	24 v / 25 q	22 p / 23 c	21 v / 22 i	3 / 0 ♑
48	49	50	51	52	53	54	55	56	57	58	Borei

ſimi ex deſcendente Semicirculo ſtant in Quadrante occidentali, & ad Auſtrum.

eli	XVII.	XIX.	XXI.	XXIII.	XXV.
	VII. Clima.	VIII. Clima.	IX. Clima.	X. Clima.	

Tabula anguli Orientis, ſeu Altitudinis Nonageſimi.

Nonàgeſimi ex Aſcendente Semicirculo ſtant in Quadrante Orientali, & ad Auſtrum.

Alti-	47	48	49	50	51	52	53	54	55	56	57	58	tudo.
Grad	p a	p a	p a	p a	p a	p a	p s	p a	p a	p a	p a	p a	Grad
♋ 0	37 v	35 c	34 p	33 t	32 v	30 d	29 n	28 v	26 b	25 q	23 c	22 t	0 ♑
3	38 n	37 s	35 c	34 b	33 t	32 v	30 d	29 n	28	26 b	25 s	23 b	27
6	39 d	38 ſs	37 q	36	34 d	33 n	32 s	30 d	29 n	28 v	26 p	25 v	24
9	41 s	39 c	38 b	37 n	36 s	34 c	33 p	32 s	30 c	29 ſs	28	26 p	21
12	42 p	41 t	40 s	38 c	37 p	36 t	35	33 b	32 q	30 c	29 s	28 v	18
15	44	42 d	41 p	40 t	39 v	37 d	36 ſs	35 s	33 c	32 ſs	31 v	29 p	15
18	45 n	44 q	43	41 d	40 ſs	39 q	38	36 b	35 t	34	32 p	31 s	12
21	46 c	45 b	44 n	43 q	42	40 d	39 ſs	38 s	36 c	35 p	34 s	32 c	9
24	48 q	47 v	45 o	44 b	43 n	42 q	41	39 b	38 n	37 v	35 d	34 n	6
27	49 b	48 ſs	47 t	46 v	44 c	43 b	42 n	41 q	40	38 b	37 n	36	3
♌ 0	51 v	49 c	48 d	47 p	45 t	45 s	43 c	42 d	41 ſs	40 q	38 c	37 b	0 ♐
3	52 n	51 q	50 s	48 c	47 d	46 p	45 n	44 s	42 c	41 b	40 ſs	39 s	27
6	53 d	52 b	51 ſs	50 t	49 s	48	46 c	45 p	44 n	43 s	41 c	40 b	24
9	55 v	53 c	52 d	51 b	50 ſs	49 t	48 s	47	45 c	44 p	43 n	42 s	21
12	56 q	55 v	54	52 c	51 d	50 p	49 ſs	48 t	47 s	46	44 c	43 p	18
15	57 n	56 t	55 s	54 v	53	51 c	50 d	49 p	48 n	47 t	46 s	44 c	15
18	58 b	57 n	56 t	55 q	54 s	53 v	52	50 c	49 b	48 p	47 n	46 q	12
21	59 n	58 ſs	57 n	56 t	55 q	54 s	53 v	52	50 c	49 d	48 b	47 ſs	9
24	60 p	59 p	58 ſs	57 n	56 t	55 q	54 s	53 v	52	50 c	49 d	48 b	6
27	61 ſs	60 ſs	59 n	58 t	57 q	56 q	55 s	54 v	53	51 c	50 c	49 d	3
♍ 0	62 t	61 t	60 q	59 q	58 s	57 v	56 v	55	53 c	52 c	51 c	50 d	0 ♏
3	63 s	62 v	61 v	60	59	57 c	56 c	55 c	54 d	53 d	52 b	51 p	27
6	63 c	62 c	61 d	60 d	59 d	58 b	57 b	56 p	55 p	54 ſs	53 ſs	52 n	24
9	64 ſs	63 n	62 n	61 n	60 t	59 t	58 t	57 q	56 q	55 q	54 s	53 s	21
12	65	64	63	61 c	60 c	59 c	58 c	57 c	56 c	55 c	54 c	53 d	18
15	65 ſs	64 n	63 n	62 n	61 n	60 n	59 n	58 t	57 t	56 t	55 t	54 q	15
18	65 c	64 c	63 c	62 c	61 c	60 c	59 c	58 d	57 d	56 d	55 d	54 d	12
21	66 s	65 s	64 s	63 s	62 s	61 v	60 v	59 v	58 v	57 v	56 v	55 v	9
24	66 t	65 t	64 t	63 t	62 t	61 t	60 t	59 t	58 t	57 t	56 t	55 t	6
27	66 ſs	65 ſs	64 ſs	63 ſs	62 ſs	61 ſs	60 ſs	59 ſs	58 ſs	57 ſs	56 ſs	55 ſs	3
♎ 0	60 ſs	65 ſs	63 ſs	63 ſs	62 ſs	61 ſs	60 ſs	59 ſs	58 ſs	57 ſs	56 ſs	55 ſs	0 ♎
Alti-	47	48	49	50	51	52	53	54	55	56	57	58	tudo.

Nonageſimi ex deſcendente Semicirculo ſtant in Quadrante occidentali, & ad Auſtrum.

Paralleli	XVII.	XIX.	XXI.	XXIII.	XXV.
	VII. Clima.	VIII. Clima.	IX. Clima.	X. Clima.	XI. Clima.

Tabula anguli Orientis, ſeu Altitudinis Nonageſimi.

Nonageſimi ex Aſcendente Semicirculo ſtant in Quadrante Zodiaci Orientali, & ad Auſtrum.

	59	60	61	62	63	64	65	66	66½	67	68	69	Borei
	p a	p a	p a	p a	p a	p a	p a	p a	—	p a	p a	p a	Grad
o	7 ſs	6 ſs	5 ſs	4 ſs	3 ſs	2 ſs	1 ſs	o ſs	*Nonageſimus ſaltat in momento à fine ♍ & occaſu, in principium ♈ & Ortum.*	o ſs	1 ſs	2 ſs	30
3	7 ſs	6 ſs	5 ſs	4 ſs	3 ſs	2 ſs	1 ſs	o ſs		o ſs	1 ſs	2 ſs	27
6	7 ſſ	6 ſs	5 ſs	4 ſs	3 ſs	2 ſs	1 ſs	o ſs		o ſs	s ſs	2 ſs	24
9	7 p	6 ſs	5 ſs	4 ſs	3 ſs	2 ſs	1 ſs	o ſs		o ſs	1 p	2 p	21
2	7 b	6 p	5 p	4 p	3 p	2 ſs	1 ſs	o ſs		o ſs	s p	2 p	18
5	7 d	6 b	5 b	4 b	3 p	2 p	1 ſs	o ſs		o p	1 p	2 p	15
8	7 c	6 d	5 b	4 b	3 p	2 p	1 p	o ſs		o p	1 p	2 b	12
1	7 e	6 c	5 d	4 d	3 b	2 p	1 p	o ſs		o p	1 b	2 d	9
4	8	7	5 c	4 c	3 d	2 b	1 p	o ſs		o p	1 b	2 c	6
7	8 s	7 v	6	4 e	3 c	2 d	1 b	o ſs		o p	1 d	2 c	3
o	8 t	7 q	6 s	5 v	3 c	2 c	1 b	o p		o p	1 d	3	o ♓
3	8 p	7 n	6 t	5 s	4	2 e	1 d	o p		o b	1 c	3 v	27
6	8 d	7 p	6 ſs	5 t	4 s	3	1 d	o p		o b	1 c	3 q	24
9	9	7 c	6 d	5 ſs	4 q	3 v	1 e	o p		o b	2	3 n	21
2	9 q	8 v	6 e	5 b	4 n	3 q	1 c	o b		o d	2 s	3 p	18
5	9 ſs	8 n	7 s	5 e	4 b	3 t	2	o b		o d	2 q	3 d	15
8	9 e	8 b	7 n	6 s	4 c	3 s	2 s	o b		o d	2 n	4 v	12
1	10 t	9 s	7 d	6 n	5 v	3 d	2 q	o d		o c	2 ſs	4 n	9
4	10 d	9 n	8 s	6 d	5 n	3 e	2 n	o d		o c	2 d	4 c	6
7	11 q	[illegible] e	8 ſs	7 s	5 b	4 s	2 p	o e		1	3	5 n	3
o	11 d	10 t	9	7 ſs	6	4 n	2 d	o e		1 v	3 n	6 ſs	o ♒
3	12 1	10 c	9 ſs	8	6 n	4 d	3	1		1 q	3 c	8 ſs	27
6	13	11 p	16 v	8 ſs	6 e	5 s	3 q	1 s		1 n	4 d	10 c	24
9	12 h	12 s	10 b	9 v	7 r	5 p	3 ſs	1 g		1 p	6 p		21
2	14 n	12 c	11 1	9 b	8	6 v	3 e	1 v		1 e	8 d ♊ 20	♊ 26	18
15	15 t	13 d	12 s	10 n	8 b	6 d	4 1	1 b		2 ſs	17 43	55	15
18	16 q	14 b	13	11 q	9 n	7 t	4 e	1 e		4 t	6 ♑	3 ♑	12
21	17 q	15 b	14	12 q	10 q	8 s	5 b	2 t		5 v ♊ 11			9
24	18 t	16 d	15 v	13 q	11 q	9 v	6 p	2 e		6 d			6
27	19 ſs	17 e	16 q	14 n	12 n	10 s	7 p	2 d		8 ♑			3
30	20 d	19 s	17 n	15 p	13 b	11 n	8 b	4 c					o ♑
	59	60	61	62	63	64	65	66	66½	67	68	69	Borei

Nonageſimi ex deſcendente Semicirculo ſtant in Quadrante occidentali, & ad Auſtrum.

XXVI. XXII. XXVIII. XXIX. XXX. XXXI. XXXII.

Tabula anguli Orientis, ſeu Altitudinis Nonageſimi.

Nonageſimi ex Aſcendente Semicirculo ſtant in Quadrante Orientali, & ad Auſtrum.

Alti-	59	60	61	62	63	64	65	66	66½	67	68	69	tudo.
Grad	p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	Grad
♋ 0	20 d	19 s	17 n	15 p	13 b	11 n	8 b	4 e	*				0 ♑
3	22 s	20 p	18 c	17	15	12 d	10	6 t	2 p				27
6	23	22	20 q	18 n	16 ſs	14 q	11 p	8 s	5 s	[illegible]			24
9	25 p	23 n	21 d	20	18 v	15 e	13 n	10 v	7 d	5 v	34 30		21
12	26 p	25	23 t	21 b	19 d	17 b	15 t	12 t	10 t	6	20 17		18
15	28 s	26 b	25	23 t	21 ſs	19 ſs	17 q	14 ſs	12 c	10 t	[illegible]	[illegible]	15
18	29 d	28 q	26 b	25 v	23 q	21 n	19 q	16 d	15 t	13 n	8 d		12
21	31 n	29 c	28 t	26 d	25 v	23 q	21 q	19	17 d	16 v	11 s	26 33	9
24	32	31 p	30 v	28 s	26 e	25 s	23 q	21 s	19 v	18 b	15 t	[illegible] 10 c	6
27	34 b	33 q	31 c	30 t	28 d	27 v	25 q	23 t	22 t	21 v	18 n	13 e	3
♌ 0	36 t	34 c	33 ſs	32 v	30 p	29	27 t	25 ſs	24 p	23 ſs	21 s	18 v	0 ♐
3	37 c	36 ſs	35 q	33 e	32 t	30 e	29 q	27 p	26 d	25 d	23 d	21 t	27
6	39 n	38 v	36 c	35 ſs	34 v	32 b	31 s	29 p	28 d	27 e	26 v	24	24
9	40 e	39 b	38 n	37 v	35 d	34 t	32 e	31 n	30 b	29 e	28 s	26 q	21
12	42 n	41 s	39 e	38 b	37 t	36	34 p	33 q	32 ſs	31 b	30	28 t	18
15	43 d	42 p	41 n	40 s	38 c	37 p	36 q	34 c	34 s	32 n	31 e	30 t	15
18	45 s	43 e	42 d	41 p	40 q	39 v	37 d	36 ſs	35 e	35 v	33 b	32 q	12
21	46 t	45 q	44 v	42 e	41 b	40 ſs	39 q	38	37 n	36 d	35 n	34	9
24	47 ſs	46 n	45 t	44 v	42 e	41 d	40 b	40 t	38 d	38 q	36 e	35 b	6
27	48 p	47 ſs	46 n	45 q	44 s	43	41 e	40 b	40 v	39 p	38 t	36 v	3
♍ 0	49 h	48 p	47 n	46 t	45 q	44 v	43	41 e	41 t	40 b	39 ſs	38 t	0 ♏
3	50 ſs	49 ſs	48 t	47	46 q	45 v	44	42 e	42 n	41 d	40 p	39 n	27
6	51 n	50 t	49 t	48 s	47 v	46	45 e	43 e	43 t	42 d	41 p	40 ſs	24
9	52 v	51 v	50	49	47 e	46 e	45 e	44 d	44 q	43 b	42 p	41 n	21
12	52 d	51 b	51 b	49 b	48 p	47 p	46 p	45 n	45	44 ſs	43 n	42 t	18
15	53 q	52 q	51 q	50 q	49 s	48 f	47 s	46 v	45 b	45 v	44 v	43 v	15
18	53 d	52 d	51 d	50 h	49 h	48 h	47 b	46 p	46 s	45 p	44 p	43 p	12
21	54 v	53 v	52 v	51	50	49	48	47	46 ſs	46	44 e	43 e	9
24	54 t	53 t	52 q	51 q	50 q	49 q	48 q	47 q	46 d	46 q	45 s	44 s	6
27	55 ſs	53 n	52 n	51 n	50 n	49 n	48 n	47 n	46 e	46 n	45 n	44 n	3
♎ 0	55 ſs	53 ſs	52 ſs	51 ſs	50 ſs	49 ſs	48 ſs	47 ſs	47	46 ſs	45 ſs	44 ſs	0 ♎
Alti-	59	60	61	62	63	64	65	66	66½	67	68	69	tudo.

Nonageſimi ex deſcendente Semicirculo ſtant in Quadrante occidentali, & ad Auſtrum.

XXVI. XXVII. XXVIII. XXIX. XXX. XXXI. XXXII. Paralleli.

Tabula anguli Orientis, ſeu Altitudinis Nonageſimi.

Ab elevatione Poli gr. 66. ½ Arcus à o ♈ incepti, uſque ad terminos in areis ſubjectos oriuntur averſi, …itio facto in ipſo Septentrione per Ortum in Meridiem, & Nonageſimus ab Oriente eſt in conſequen… ſumendus, tranſponiturq; in Ecliptica quidem in antecedentia, reſpectu verò Horizontis, ab Occaſu …r Septentrionem in Ortum. & quando deſinit arcus oriri in ipſo Meridiano, averſè tunc incipit oppoſitus …ri directè in ipſo Septentrione.

…li	70	71	72	73	74	75	76	77	78	79	80	81	Borei
…rad / o	p a / 3 ſs	p a / 4 ll	p a / 5 ſs	p a / 6 ſs	p a / 7 11	p a / 8 ſs	p a / 9 ſs	p a / 10 ſs	p a / 11 ſs	p a / 12 ſs	p a / 13 ſs	p a / 14 ſs	— / 30
3	3 ſs	4 ſs	5 ſs	6 ſs	7 ſs	8 ſs	9 ſs	10 ſs	11 ſs	12 p	13 p	14 p	27
6 / 9	3 p / 3 p	4 p / 4 p	5 p / 5 p	6 p / 6 b	7 p / 7 b	8 p / 8 b	9 p / 9 d	10 p / 10 d	11 b / 11 d	12 b / 12 c	13 b / 13 e	14 d / 15	24 / 21
12	3 p	4 p	5 p	6 d	7 d	8 e	9 e	11	12 v	13 s	14 q	15 n	18
15 / 18	3 b / 3 d	4 d / 4 c	5 d / 5 e	6 c / 7	7 e / 8 v	9 / 9 q	10 s / 10 n	11 q / 11 p	12 ſs / 12 e	13 p / 14 v	14 d / 15 n	16 / 16 e	15 / 12
21	3	4 e	6 v	7 s	8 t	9 p	10 d	12	13 t	14 d	16 n	18 n	9
24 / 27	3 e / 4	5 v / 5 q	6 q / 6 n	7 n / 7 d	8 b / 9 v	9 e / 10 t	11 s / 11 d	12 p / 13 ſs	14 s / 15 q	15 c / 17 b	18 v / 21 n / 47 ♓	21 c / 5 ♓	6 / 3
0	4 s	5 n	6 d	8 v	9 ſs	11	12 b	14 p	17 q	20 e / 33 ♓	25 4	23 9 / ♈ 55	0 ♓
3 / 6	4 t / 4 p	5 b / 6	7 v / 7 ſs	8 ſs / 9 v	10 / 10 e	11 d / 12 e	13 e / 15 e	16 b / 19 d / 18 ♒	20 n / 24 ♒	28 1	♈ 13		27 / 24
9	4 e	6 t	8	9 c	12	15	19 v / 20 ♒	4 25	1 28	♈ 27			21
12 / 15	5 s / 5 p	6 d / 7 n	8 b / 9 p	10 e / 12 p	13 c / 17 ſs / 41 ♒	18 s / 26 ♒	7 24	♈ 41	♈ 36				18 / 15
18	6	8 s	11	16 ſs / 6 ♒	11 16	10 19	♈ 40						12
21 / 24	6 p / 7 ſs	9 t / 11 o	15 d / 44 ♒	17 12	♈ 19	♈ 34							9 / 6
27	9	14 s / 39 ♒	20 9	♈ 54									3
0 / 3	12 b / 58 ♒	24 5	♈ 16										0 ♒ / 27
6	28 1	♈ 21											24
9 / 12	♈ 2												21 / 18
15													15
18 / 21													12 / 9
24													6
27 / 0													3 / 0 ♑
…i	70	71	72	73	74	75	76	77	78	79	80	81	Borei

Tabula anguli Orientis, ſeu Altitudinis Nonageſimi.

Ab altitudine Poli gr. 66. ½ Arcus à o ♈ incepti, uſque ad terminos in areis ſubjectos oriuntur averſi, initio facto in ipſo Septentrione per Ortum in Meridiem, & Nonageſimus ab Oriente eſt in conſequentia ſumendus, tranſponiturq; in Ecliptica quidem in antecedentia, reſpectu verò Horizontis, ab Occaſu per Septentrionem in Ortum, & quando deſinit arcus oriri in ipſo Meridiano, averſe tunc incipit oppoſitus oriri directè in ipſo Septentrione.

Poli	70	71	72	73	74	75	76	77	78	79	80	81	Borei
Grad	p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	p a	Grad
♋ 0													♑
3													27
6	—	—	—	—	—	—	—	—	—	—	—	—	24
9													21
12													18
15		—	—	—	—	—	—	—	—	—	—	—	15
18	α 28												12
21	~ 58												9
24	♌ ♏			—	—	—	—	—	—	—	—	—	6
27		12 21 ♏	16 ♏										3
♌ 0	12 b	5 24 35	6 20										0 ♐
3	17 b	♌ 14 s	♌ 44					—	—	—	—	—	27
6	21 s	16 e		54 ♏	16 ♏	34 ♏	40 ♏						24
9	24 v	21 t	15 d	12 17	16 13	19 10	22 7						21
12	26 n	24 p	21 n	♌ 9 16 ſs	♌ 41	♌ 26	♌ 20				—	—	18
15	28 p	26 e	24 b	21 b	17 ſs			42 ♏	36 ♏	27 ♏			15
18	30 b	29 v	27 q	25	22	18 s		25 4	28 1	1 28			12
21	32 p	31	29 t	27 d	25 n	22 n	19 v	♌ 18	♌ 24	♍ 33			9
24	34 1	32 b	31 q	29 d	28	25 e	22 e	19 d			19 ♍	55 ♍	6
27	35 e	34 n	33	31 p	30 v	28 t	26	23 ſs	20		4 25	9 23	3
♍ 0	37 s	35 e	34 p	33 q	31 e	30 t	28 b	26 d	24 v	20 e	♍ 47	♍ 5	0 ♏
3	38 q	37 v	35 e	34 b	33 t	32	30 b	28 e	27 s	24 d	21 n		27
6	39 n	38 q	37 s	35 e	34 b	33 ſs	32 q	30 d	29 q	27 ſs	25 q	21 e	24
9	40 n	39 q	38 s	37 v	35 e	34 b	33 ſs	32 g	30 e	29 ſs	27 e	25	21
12	41 q	40 s	39 v	38	36 c	35 d	34 p	33 n	32 v	30 c	29 p	28	18
15	42	40 e	39 e	38 d	37 b	36 p	35 n	34 1	33 s	32	30 e	29	15
18	42 p	41 ſs	40 n	39 n	38 r	37 t	36 q	35 s	34 v	33	31 e	30	12
21	42 e	41 e	40 e	39 t	38 c	37 c	36 d	35 d	34 d	33 b	32 p	31	9
24	43 q	42 q	41 q	40 q	39 q	38 q	37 q	36 s	35 s	34 s	33 v	32	6
27	43 n	42 n	41 n	40 ſs	39 ſs	38 ſs	37 ſs	36 ſs	35 ſs	34 n	33 n	32	3
♎ 0	42 ſs	42 ſs	41 ſs	40 ſs	39 ſs	38 ſs	37 ſs	36 ſs	35 ſs	34 ſs	33 ſs	32	0 ♎
Poli	70	71	72	73	74	75	76	77	78	79	80	81	Borei

Arcus ab o ♎ incepti uſque ad terminos in areis ſuperpoſitos oriuntur directè, initio facto ab ipſo Septentrione per Ortum in meridiem; & Nonageſimus ab Oriente puncto ſumendus eſt in antecedentia, ut ſit idem qui in fronte columnarum ſumi jubetur; tranſponiturq; in Ecliptica quidem in conſequentia, reſpectu verò Horizontis ab ortu per meridiem in Occaſum, & quando deſinit arcus oriri directè in ipſo meridie, tunc incipit oppoſitus oriri averſe in ipſo Septentrione.

Tabula anguli Orientis, ſeu Altitudinis Nonageſimi.

Ab altitudine Poli gr. 66. ½ Arcus à o ♈ incepti, uſque ad terminos in arcis ſubjectos oriuntur averſi, …io facto in ipſo Septentrione per Ortum in Meridiem, & Nonageſimus ab Oriente eſt in conſequen- … ſumendus, tranſponiturq; in Ecliptica quidem in antecedentia, reſpectu verò Horizontis, ab Occaſu …r Septentrionem in Ortum, & quando deſinit arcus oriri in ipſo Meridiano, averſè tunc incipit oppoſitus …ri directè in ipſo Septentrione.

…oli.	82	83	84	85	86	87	88	89	90	Borei
…rad	p a	p a	p a	p a	p a	p a	p a	p a	p a	Grad.
0	15 ſs	16 ſs	17 ſs	18 ſs	19 ſs	20 ſs	21 ſs	22 ſs	23 ſs	30
3	15 p	16 p	17 p	18 b	19 b	20 d	21 c	23 ſs		27
6	15 d	16 c	17 c	19	20 s	21 p	23 n			24
9	16 v	17 q	18 n	19 d	21 ſs	23 s	♓	38 27		21
12	16 b	17 e	19 n	21 p	23 s		5 24	2 30		18
15	17 n	10 v	21 e	23			♈ 59	♈ ♓		15
18	18 c	22 ſs	22 d	38 ♓	5 ♓	33 ♓				12
21	22 s			12 17	10 19	7 22				9
24	*			♈ 22	♈ 55	♈ 27				6
27	25 ♓	48 ♓	10 ♓							3
0	20 9	17 13	15 14							0 ♓
	♈ 35	♈ 12	♈ 50							
♊/♋										♒/♑
0	35 ♎	12 ♎	50 ♎	22 ♎						♐ 0 ♏
3	6 20	12 17	14 15	17 12						27
6	♍ 25	♍ 48	♍ 11	♍ 38						24
9	22 s				55 ♎	2 ♎	59 ♎			21
12	26 v	22 ſs	22 d		19 10	22 7	24 5			18
15	28 s	26 ſs	23 b	23	♍ 5	♍ 33	♍ 1			15
18	29 ſs	28 s	26 d	24 p	23 s			30 ♎		12
21	30 n	29 q	28 v	26 d	25 v	23 s		27 a		9
24	31 v	30	28 e	27 c	26 b	25 q	23 n	♍ 30		6
27	31 n	30 n	29 n	28 t	27 t	26 q	25 v	23 ſs		3
0	31 ſs	30 ſs	29 ſs	28 ſs	27 ſs	26 ſs	25 ſs	24 ſs	23 ſs	0 ♎
…ti-	82	83	84	85	86	87	88	89	90	…tudo.

Quia o ♈ & o ♎ ſunt in Horizonte, Nonageſimus perpetuus eſt o ♋ permeans æquabiliter plagas Horizontis omnes à ſiniſtris antrorſum ad dextr.

Arcus ab o ♎ incepti uſque ad terminos in arcis ſuperpoſitos oriuntur directè, initio facto ab ipſo …ptentrione per Ortum in meridiem: & Nonageſimus ab Oriente puncto ſumendus eſt in anteceden- … ut ſit idem qui in fronte columnarum ſumi jubetur; tranſponiturq; in Ecliptica quidem in conſe-…ntia; reſpectu verò Horizontis ab ortu per meridiem in Occaſum, & quando deſinit arcus oriri di-…tè in ipſo meridie, tunc incipit oppoſitus oriri averſè in ipſo Septentrione.

CATALOGUS *quorundam inſignium locorum in diverſis* TERRÆ *Regionibus, cum differentiâ temporariâ Meridianorum ab inclytiſſimâ Urbe* Londinenſi, *& Poli borealis altitudinibus.*

Nomina Civitatum & Locorum.	Latitudo gr. '	Dif. Merid. Ho. '	Nomina Civitatum & Locorum.	Latitudo gr. '	Dif. Merid. Ho. '
ABerdonia Scotiæ	58 4	0 7 S.	*LONDINUM* Angliæ Metrop.	51 32	0 0
Alexandria Ægypti.	30 58	2 20 A.	Lutetia Pariſiorum.	48 39	0 8 A.
Amſtelrodamum Hollandiæ.	52 25	0 20 A.	Middelburgum Zelandiæ.	51 30	0 18 A.
Antwerpia Brabantiæ.	51 12	0 17 A.	Madrid Hiſpaniæ.	40 45	0 9 S.
Aracta Syriæ.	36 0	3 20 A.	Mons Michaelis Cornwalliæ.	50 39	0 22 S.
Athenæ Græciæ.	37 42	1 54 A.	Mons Regius Boruſſiæ.	54 43	1 31 A.
Babylon Caldæorum.	35 0	3 10 A.	Neapolis Italiæ.	40 42	1 0 A.
Bedfordia Angliæ.	52 12	0 2 S.	Northamptonia Angliæ. (tis.	52 18	0 3 S.
Berwicus Angliæ.	55 50	0 6 S.	*Northluffenhamia*, ſedes autho-	52 40	0 2 S.
Bethelem in Triba Juda.	31 50	2 48 A.	Norwicus Angliæ.	52 46	0 5 A.
Bononia Italiæ.	43 49	0 45 A.	Norimberga Germaniæ.	49 26	0 48 A.
Briſtolia Angliæ.	51 28	0 12 S.	Nottinghamia Angliæ.	53 0	0 4 S.
Brema Saxoniæ.	53 12	0 38 A.	Oſtenda Flandriæ.	51 10	0 16 A.
Calecutum Indiæ.	11 30	5 52 A.	Oxonium Angliæ, *Academia.*	51 45	0 5 S.
Cantabrigia Angliæ. *Academia.*	52 17	0 1 A.	Paravium Italiæ.	45 6	0 48 A.
Cantuaria Angliæ.	51 25	0 4 A.	Praga Bohemiæ.	50 6	0 58 A.
Caſſella Haſſiæ.	51 19	0 39 A.	Penbrochia Angliæ.	51 54	0 19 S.
Compoſtella Hiſpaniæ.	43 0	0 36 S.	Petriburgus Angliæ.	52 38	0 1 S.
Conimbria Luſitaniæ.	40 15	0 33 S.	Roffa Angliæ.	51 30	0 2 A.
Carleolum Angliæ.	54 59	0 12 S.	Quinſai Chartzoi.	40 0	8 32 A.
Ceſtria Angliæ.	53 16	0 12 S.	Rarisbona Bavariæ.	49 9	0 51 A.
Coventria Angliæ.	52 30	0 6 S.	Roma Italiæ.	42 2	0 51 A.
Damaſcus Syriæ.	34 0	3 18 A.	Roterodamum Hollandiæ.	51 55	0 15 A.
Derbia Angliæ. (18.	53 3	0 6 S.	Richmondia Angliæ.	54 26	0 7 S.
Dantiſcum Pruſſiæ. Alii Ho. 1.	54 23	1 14 A.	Rupella Aquitaniæ. *Rochell.*	45 49	0 4 S.
Dublinium Hiberniæ. Metrop.	53 11	0 27 S.	Sarum Angliæ.	51 12	0 7 S.
Dunelmum Ang. vulgò *Durham.*	54 47	0 6 S.	Sardes Lydiæ.	38 34	2 24 A.
Eboracum Angliæ, vulgò *York.*	54 0	0 4 S	Siracuſa Siciliæ.	36 50	1 7 A
Edenburgum Scotiæ, Metrop.	57 6	0 10 S.	Salopia Angliæ.	52 49	0 11 S.
Exonia Angliæ.	51 53	0 14 S.	Salamanca Hiſpaniæ.	41 12	0 20 S.
Coloceſtria Angliæ.	52 4	0 4 A.	Salisburgum Bavariæ.	47 42	0 56 A.
Francfordia ad Mænum.	50 2	0 35 A.	Staffordia Angliæ.	52 54	0 9 S.
Francfordia ad Oderam.	52 20	1 0 A.	Spira Civit. imperialis.	49 24	0 37 A.
Fruenburgum Pruſſiæ.	54 22	1 28 A.	Stetinum Pomeraniæ.	53 36	0 54 A.
Gloceſtria Angliæ.	51 58	0 9 S.	Stockholmia Sueviæ.	58 50	1 3 A.
Goeſa Zelandiæ. Lanſb. 0^h.20'.	51 30	0 17 A.	Stamfordia Angliæ, olim Acad.	52 41	0 2 S.
Gandavum Flandriæ.	51 4	0 18 A.	Theſſalonica.	41 32	1 47 A.
Goa Indiæ.	16 0	5 50 A.	Toletum Hiſpaniæ.	40 10	0 24 S.
Gratium Styriæ.	47 2	0 56 A.	Torga Miſniæ.	51 33	0 55 A.
Haphnia Daniæ.	55 43	0 52 A.	Tubinga Sueviæ.	48 34	0 40 A.
Hertfordia Angliæ.	51 55	0 0	Valentia Hiſpaniæ.	39 55	0 7 S.
Huntingdonia Angliæ.	52 24	0 1 S.	Venetia.	45 15	0 50 A.
Heidelberga.	49 36	0 38 A.	Vienna Auſtriæ.	48 22	1 8 A.
Hieroſolyma. (Hiberniæ.	32 10	3 2 A.	Ulma Sueviæ.	48 24	0 44 A.
Knockfergus, alias Carictergus	54 40	0 29 S.	*Uraniburgum Daniæ.*	55 55	0 52 A.
Leida Hollandiæ.	52 7	0 21 A.	Warwicus Angliæ.	52 25	0 6 S.
Lancaſtria Angliæ.	54 10	0 11 S.	Witeberga Saxoniæ.	51 52	0 54 A.
Liſibona Portugalliæ.	38 45	0 34 S.	Wintonia Angliæ.	51 13	0 8 S.
Leiceſtria Angliæ.	52 41	0 4 S.	Wormatia, Civit. Imperialis.	50 25	0 31 A.
Lincolnia Angliæ.	53 15	0 1 S	Vigornia Angliæ, *Worceſter.*	52 18	0 9 S.

…NONES ÆQUATIONUM DIERUM NATURALIUM.

… à nobis & Tychone re… …e continet differentiam Aſ… … Rectarum Æquinoctialis …i.

♎ … ″	♉ ♏ Adde ′	″	♊ ♐ Adde ′	″	☉ loci
0	8	25	8	47	30
20	8	36	8	37	29
40	8	45	8	26	28
59	8	55	8	15	27
19	9	4	8	3	26
39	9	12	7	50	25
59	9	19	7	36	24
18	9	26	7	22	23
38	9	32	7	7	22
57	9	37	6	52	21
16	9	42	6	36	20
35	9	46	6	20	19
53	9	50	6	3	18
12	9	52	5	46	17
30	9	54	5	28	16
47	9	56	5	10	15
5	9	56	4	51	14
22	9	56	4	32	13
38	9	55	4	12	12
55	9	53	3	53	11
11	9	51	3	33	10
26	9	48	3	12	9
41	9	45	2	51	8
56	9	40	2	31	7
10	9	34	2	9	6
24	9	28	1	48	5
37	9	21	1	27	4
50	9	14	1	5	3
2	9	6	0	43	2
14	8	57	0	22	1
25	8	47	0	0	0
…r. ♍	Subtr. ♒ ♌		Subtr. ♑ ♋		Grad.

Pars altera à Tychone & nobis rejecta, quæ oritur ex inæqualitate diurnarum Terræ revolutionum circa ejus axem.

Grad.	0 6 Add. Subtr. ′	″	1 7 Add. Subtr. ′	″	2 8 Add. Subtr. ′	″	Anom.
0	0	0	2	1	3	31	30
1	0	4	2	5	3	34	29
2	0	8	2	9	3	36	28
3	0	13	2	12	3	38	27
4	0	17	2	15	3	40	26
5	0	21	2	19	3	41	25
6	0	26	2	22	3	43	24
7	0	30	2	26	3	45	23
8	0	34	2	30	3	47	22
9	0	38	2	33	3	49	21
10	0	42	2	36	3	51	20
11	0	46	2	40	3	53	19
12	0	50	2	43	3	54	18
13	0	54	2	46	3	55	17
14	0	58	2	50	3	57	16
15	1	3	2	55	3	58	15
16	1	7	2	56	3	59	14
17	1	11	2	59	4	0	13
18	1	15	3	2	4	1	12
19	1	19	3	5	4	2	11
20	1	23	3	7	4	2	10
21	1	27	3	10	4	3	9
22	1	31	3	13	4	4	8
23	1	35	3	15	4	4	7
24	1	38	3	17	4	5	6
25	1	42	3	20	4	5	5
26	1	46	3	22	4	5	4
27	1	49	3	24	4	6	3
28	1	53	3	26	4	6	2
29	1	57	3	29	4	6	1
30	2	1	3	31	4	6	0
☉ Ano.	5 Add. 11 Subtr.		4 Add. 10 Subtr.		3 Add. 9 Subtr.		Grad.

CANON ÆQUATIONIS DIERUM NATURALIUM, ex duabus præcedentibus compoſitæ, & noſtro huic ſeculo citra errorem ſenſibilem ſubſerviens.

Grad.	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓
	Subtr. ′ ″	Adde ′ ″	Adde ′ ″	Subtr. ′ ″	Subtr. ′ ″	Subtr. ′ ″	Adde ′ ″	Adde ′ ″	Adde ′ ″	Adde ′ ″	Subtr. ′ ″	Subtr. ′ ″
0	4 4	4 57	6 17	0 29	7 8	5 8	4 4	12 10	11 12	0 28	10 23	11 40
1	3 44	4 50	6 10	0 46	7 14	4 54	4 24	12 19	10 59	0 1	10 37	11 32
2	3 25	5 1	6 3	1 3	7 19	4 39	4 45	12 26	10 44	0 S.25	10 49	11 22
3	3 6	5 13	5 55	1 21	7 23	4 24	5 5	12 34	10 30	0 50	11 1	11 13
4	2 47	5 24	5 46	1 38	7 26	4 8	5 25	12 41	10 14	1 17	11 13	11 2
5	2 28	5 24	5 37	1 55	7 29	3 53	5 45	12 47	9 58	1 41	11 23	10 51
6	2 8	5 43	5 27	2 12	7 31	3 37	6 5	12 52	9 40	2 6	11 33	10 39
7	1 49	5 51	5 16	2 30	7 33	3 21	6 24	12 57	9 22	2 32	11 42	10 28
8	1 29	5 59	5 6	2 46	7 34	3 4	6 44	13 1	9 3	2 56	11 50	10 15
9	1 10	6 6	4 55	3 2	7 34	2 46	7 3	13 4	8 44	3 22	11 58	10 2
10	0 51	6 14	4 43	3 18	7 33	2 30	7 21	13 6	8 24	3 47	12 4	9 49
11	0 32	6 20	4 30	3 34	7 32	2 11	7 40	13 8	8 4	4 11	12 10	9 35
12	0 13	6 26	4 18	3 49	7 30	1 52	7 59	13 9	7 44	4 35	12 15	9 20
13	0 A.7	6 31	4 5	4 4	7 28	1 34	8 16	13 8	7 23	4 59	12 20	9 6
14	0 25	6 36	3 51	4 19	7 25	1 16	8 34	13 7	7 1	5 22	12 24	8 50
15	0 43	6 41	3 37	4 33	7 21	0 57	8 50	13 6	6 39	5 45	12 27	8 33
16	1 1	6 44	3 22	4 47	7 16	0 38	9 8	13 4	6 16	6 7	12 29	8 18
17	1 18	6 46	2 7	5 1	7 11	0 19	9 24	13 1	5 52	6 29	12 30	8 2
18	1 35	6 48	2 52	5 14	7 5	0 A.0	9 39	12 57	5 28	6 50	12 31	7 45
19	1 53	6 49	2 37	5 26	6 59	0 20	9 51	12 52	5 6	7 12	12 30	7 27
20	2 10	6 49	2 21	5 38	6 52	0 40	10 10	12 47	4 42	7 32	12 29	7 10
21	2 26	6 50	2 4	5 50	6 44	1 0	10 24	12 41	4 17	7 52	12 27	6 52
22	2 42	6 49	1 47	6 1	6 36	1 21	10 38	12 34	3 53	8 11	12 25	6 34
23	2 59	6 47	1 31	6 12	6 27	1 41	10 51	12 27	3 29	8 30	12 22	6 16
24	3 14	6 45	1 14	0 22	6 17	2 2	11 4	12 19	3 3	8 48	12 19	5 58
25	3 29	6 42	0 57	6 31	6 6	2 22	11 17	12 10	2 37	9 6	12 14	5 39
26	3 44	6 39	0 40	6 40	5 56	2 43	11 28	11 59	2 12	9 24	12 9	5 20
27	3 58	6 35	0 22	6 48	5 45	3 3	11 39	11 49	1 46	9 40	12 2	5 2
28	4 11	6 30	0 5	6 55	5 33	3 23	11 50	11 38	1 20	9 55	11 55	4 43
29	4 24	6 24	0 S.12	7 2	5 21	3 42	12 0	11 26	0 55	10 10	11 49	4 23
30	4 37	6 17	0 29	7 8	5 8	4 4	12 10	11 12	0 28	10 23	11 40	4 4

Tabula Climatum & Parallelorum.

Altitudo Poli Borei. gr.	'	Climata.	Paralleli Aſtronomici.		Habitatores.	Dies longior. Ho.	M.
0	0		I.	Æquator.	Amphiſcii.	12	0
4	15		II.	Per Tapobranam.		12	15
8	25		III.	Per ſinum Aualitum.		12	30
12	30		IV.	Per ſinum Aduliticum.		12	45
16	27	I. Diameroës.	V.	Per Meroën.		13	0
20	15		VI.	Per Napata.		13	15
23	51	II. Diaſyenes.	VII.	Per Syenem.	Heteroſcii.	13	30
27	40		VIII.	Per Ptolemaida.		13	45
30	22	III. Dialexandrias.	IX.	Per Alexandriam.		14	0
33	18		X.	Per Phænicem.		14	15
36	10	IV. Diarhodu.	xi.	Per Rhodum.		14	30
38	35		xii.	Per Smyrnem.		14	45
40	56	V. Diarhomes.	xiii.	Per Heleſpontum.		15	0
43	5		xiv.	Per Maſſiliam.		15	15
45	1	VI. Diapontu.	xv.	Per Pontum.		15	30
46	51		xvi.	Per Danubii fontes.		15	45
48	32	VII. Diaboriſthenes.	xvii.	Per Boriſthenis Flu. oſtia.	Heteroſcii.	16	0
50	0		xviii.	Per Meotida Paludem.		16	15
51	30	VIII. Diabritannias.	xix.	Per Brabantiam.		16	30
52	50		xx.	Per Angliæ medium.		16	45
54	1	IX. Diatanaidos.	xxi.	Per Tanais flu. oſtia.		17	0
55	0		xxii.	Per Bulæum Angliæ:		17	15
56	0		xxiii.	Per mediam Britanniam.		17	30
57	0		xxiv.	Per Camulodunum Angliæ.		17	45
58	0		xxv.	Per Hyberniam.		18	0
59	30		xxvi.	Per mediam Hyberniam.		18	30
61	0		xxvii.	Per Orchades inſulas Scotiæ.	Heteroſcii.	19	0
62	0		xxviii.	Per Ebudas inſulas.		19	30
63	16	Climata Septentrionalia.	xxix.	Per Thylem inſulam.		20	0
64	30		xxx.	Per Scythiam.		21	0
65	30		xxxi.	Per Scythiam.		22	0
66	0		xxxii.	Per Gotthiam.		23	0
66	40		xxxiii.	Per Gotthiam.		24	0
67	45		xxxiv.	Per Gotthiam.	Periſcii.	Menſis	1.
69	30		xxxv.	Per Iſlandiam.		Menſes	2.
73	20		xxxvi.	Per Pilappos.		Menſes	3.
78	20		xxxvii	Per mare glaciale.		Menſes	4.
84	0		xxxviii.	Per mare glaciale.		Menſes	5.
90	0			Polus Mundi.		Menſes	6.

CANON INTERVALLORUM EPOCHARUM.

A MUNDI ORIGINE.

Ad initium annorum.	Anni Ægypt.	Dies.	Anni Juliani.	Dies.	Dierum Sexag. ‴ ″ ′ Dies.
Nabonaſſari	3204	126	3202	54	5 24 53 1
Obitûs Alexandri	3628	126	3625	315	6 7 52 26
Chriſti Dei	3951	257	3949	0	6 40 39 32

A NABONASSARO.

Ad initium annorum.	Anni Ægypt.	Dies.	Anni Juliani	Dies.	Dierum Sexag. ‴ ″ ′ Dies.
Obitûs Alexandri.	424	0	423	260	0 42 59 20
CHRISTI DEI.	747	131	746	310	1 15 46 26

A MORTE ALEXANDRI.

Ad initium annorum.	Anni Ægypt.	Dies.	Anni Juliani	Dies.	Dierum Sexag. ‴ ″ ′ Dies.
CHRISTI DEI.	323	131	323	51	0 32 47 6

INITIUM ANNORUM MUNDI, & SALVATORIS NOSTRI JESU CHRISTI
Pendet à meridie Calendarum Januarii.

CANON CONVERTENDI ANNOS ET MENSES ÆGYPTIOS in dierum Sexagenas & dies.

Anni col-lect. Æg.	Dierum Sexagenæ. 3z.2z.1z. Di.	An. ex-pan.	Dierum Sexagen. 2z.1z.Di.	An. ex-pan.	Dierum Sexagen. 2z.1z.Di.	An. ex-pan.	Dierum Sexagen. 2z.1z.Di.
100	0 10 8 20	1	0 6 5	35	3 32 55	69	6 59 45
200	0 20 16 40	2	0 12 10	36	3 39 0	70	7 5 50
300	0 30 25 0	3	0 18 15	37	3 45 5	71	7 11 55
400	0 40 33 20	4	0 24 20	38	3 51 10	72	7 18 0
500	0 50 41 40	5	0 30 25	39	3 57 15	73	7 24 5
600	1 0 50 0	6	0 36 30	40	4 3 20	74	7 30 10
700	1 10 58 20	7	0 42 35	41	4 9 25	75	7 36 15
800	1 21 6 40	8	0 48 40	42	4 15 30	76	7 42 20
900	1 31 15 0	9	0 54 45	43	4 21 35	77	7 48 25
1000	1 41 23 20	10	1 0 50	44	4 27 40	78	7 54 30
1100	1 51 31 40	11	1 6 55	45	4 33 45	79	8 0 35
1200	2 1 40 0	12	1 13 0	46	4 39 50	80	8 6 40
1300	2 11 48 20	13	1 19 5	47	4 45 55	81	8 12 45
1400	2 21 56 40	14	1 25 10	48	4 52 0	82	8 18 50
1500	2 32 5 0	15	1 31 15	49	4 58 5	83	8 24 55
1600	2 42 13 20	16	1 37 20	50	5 4 10	84	8 31 0
1700	2 52 21 40	17	1 43 25	51	5 10 15	85	8 37 5
1800	3 2 30 0	18	1 49 30	52	5 16 20	86	8 43 10
1900	3 12 38 20	19	1 55 35	53	5 22 25	87	8 49 15
2000	3 22 46 40	20	2 1 40	54	5 28 30	88	8 55 20
2100	3 32 55 0	21	2 7 45	55	5 34 35	89	9 1 25
2200	3 43 3 20	22	2 13 50	56	5 40 40	90	9 7 30
2300	3 53 11 40	23	2 19 55	57	5 46 45	91	9 13 35
2400	4 3 20 0	24	2 26 0	58	5 52 50	92	9 19 40
2500	4 13 28 20	25	2 32 5	59	5 58 55	93	9 25 45
2600	4 23 36 40	26	2 38 10	60	6 5 0	94	9 31 50
2700	4 33 45 0	27	2 44 15	61	6 11 5	95	9 37 55
2800	4 43 53 20	28	2 50 20	62	6 17 10	96	9 44 0
2900	4 54 1 40	29	2 56 25	63	6 23 15	97	9 50 5
3000	5 4 10 0	30	3 2 30	64	6 29 20	98	9 56 10
4000	6 45 33 20	31	3 8 35	65	6 35 25	99	10 2 15
5000	8 26 56 40	32	3 14 40	66	6 41 30	100	10 8 20
6000	10 8 20 0	33	3 20 45	67	6 47 35		
7000	11 49 43 20	34	3 26 50	68	6 53 40		

Menſes.

	Sex	dies.
Thoth	0	30
Phaophi	1	0
Athyr	1	30
Chæac	2	0
Tybi	2	30
Mechir	3	0
Phamen.	3	30
Pharmu.	4	0
Pachon	4	30
Payni	5	0
Epephi	5	30
Meſori	6	0
Quinq;Epa.	6	5

CANON CONVERTENDI ANNOS ET MENSES JULIANOS, in dierum Sexagenas & dies.

An. col-lecti	Dierum Sexagenæ. 3x.	2x.	1x.	Di.	An. ex-pan.	Dierum Sexagen. 2x.	1x.	Di.	An. ex-pan.	Dierum Sexagen. 2x.	1x.	Di.	An. ex-pan.	Dierum Sexagen. 2x.	1x.	Di.
100	0	10	8	45	1	0	6	5	35	3	33	3	69	7	0	2
200	0	20	17	30	2	0	12	10	36	3	39	9	70	7	6	7
300	0	30	26	15	3	0	18	15	37	3	45	14	71	7	12	12
400	0	40	35	0	4	0	24	21	38	3	51	19	72	7	18	18
500	0	50	43	45	5	0	30	26	39	3	57	24	73	7	24	23
600	1	0	52	30	6	0	36	31	40	4	3	30	74	7	30	28
700	1	11	1	15	7	0	42	36	41	4	9	35	75	7	36	33
800	1	21	10	0	8	0	48	42	42	4	15	40	76	7	42	39
900	1	31	18	45	9	0	54	47	43	4	21	45	77	7	48	44
1000	1	41	27	30	10	1	0	52	44	4	27	51	78	7	54	49
1100	1	51	36	15	11	1	6	57	45	4	33	56	79	8	0	54
1200	2	1	45	0	12	1	13	3	46	4	40	1	80	8	7	0
1300	2	11	53	45	13	1	19	8	47	4	46	6	81	8	13	5
1400	2	22	2	30	14	1	25	13	48	4	52	12	82	8	19	10
1500	2	32	11	15	15	1	31	28	49	4	58	17	83	8	25	15
1600	2	42	20	0	16	1	37	24	50	5	4	22	84	8	31	21
1700	2	52	28	45	17	1	43	29	51	5	10	27	85	8	37	26
1800	3	2	37	30	18	1	49	34	52	5	16	33	86	8	43	31
1900	3	12	46	15	19	1	55	39	53	5	22	38	87	8	49	36
2000	3	22	55	0	20	2	1	45	54	5	28	43	88	8	55	42
2100	3	33	3	45	21	2	7	50	55	5	34	48	89	9	1	47
2200	3	43	12	30	22	2	13	55	56	5	40	54	90	9	7	52
2300	3	53	21	15	23	2	20	0	57	5	46	59	91	9	13	57
2400	4	3	30	0	24	2	26	6	58	5	53	4	92	9	20	3
2500	4	13	38	45	25	2	32	11	59	5	59	9	93	9	26	8
2600	4	23	47	30	26	2	38	16	60	6	5	15	94	9	32	13
2700	4	33	56	15	27	2	44	21	61	6	11	20	95	9	38	18
2800	4	44	5	0	28	2	50	27	62	6	17	25	96	9	44	24
2900	4	54	13	45	29	2	56	32	63	6	23	30	97	9	50	29
3000	5	4	22	30	30	3	2	37	64	6	29	36	98	9	56	34
4000	6	45	50	0	31	3	8	42	65	6	35	41	99	10	2	39
5000	8	27	17	30	32	3	14	48	66	6	41	46	100	10	8	45
6000	10	8	45	0	33	3	20	53	67	6	47	51				
7000	11	50	12	30	34	3	26	58	68	6	53	57				

Anni communis Menſes.	Sex	dies.	Anni Biſſextilis Menſes.	Sex	dies
Januarius	0	31	Januarius	0	31
Februarius	0	59	Februarius	1	0
Martius	1	30	Martius	1	31
Aprilis	2	0	Aprilis	2	1
Maius	2	31	Maius	2	32
Junius	3	1	Junius	3	2
Julius	3	32	Julius	3	33
Auguſtus	4	3	Auguſtus	4	4
September	4	33	September	4	34
October	5	4	October	5	5
November	5	34	November	5	35
December	6	5	December	6	6

CANON CONVERTENDI horas & Scrupula horæ in Scrupula Diei.

Ho. ′ ″	Dies ′ ″	′ ″ ‴	″ ‴ iv.	Ho. ′ ″	Dies ′ ″	′ ″ ‴	″ ‴ iv.
1	0	2	30	31	1	17	30
2	0	5	0	32	1	20	0
3	0	7	30	33	1	22	30
4	0	10	0	34	1	25	0
5	0	12	30	35	1	27	30
6	0	15	0	36	1	30	0
7	0	17	30	37	1	32	30
8	0	20	0	38	1	35	0
9	0	22	30	39	1	37	30
10	0	25	0	40	1	40	0
11	0	27	30	41	1	42	30
12	0	30	0	42	1	45	0
13	0	32	30	43	1	47	30
14	0	35	0	44	1	50	0
15	0	37	30	45	1	52	30
16	0	40	0	46	1	55	0
17	0	42	30	47	1	57	30
18	0	45	0	48	2	0	0
19	0	47	30	49	2	2	30
20	0	50	0	50	2	5	0
21	0	52	30	51	2	7	30
22	0	55	0	52	2	10	0
23	0	57	30	53	2	12	30
24	1	0	0	54	2	15	0
25	1	2	30	55	2	17	30
26	1	5	0	56	2	20	0
27	1	7	30	57	2	22	30
28	1	10	0	58	2	25	0
29	1	12	30	59	2	27	30
30	1	15	0	60	2	30	0

CANON CONVERTENDI Scrupula Diei, in horas & Scrupula Horæ.

′ ″ ‴	Hor. ′ ″	′ ″ ‴	′ ″ ‴	Hor. ′ ″	′ ″ ‴
1	0	24	31	12	24
2	0	48	32	12	48
3	1	12	33	13	12
4	1	36	34	13	36
5	2	0	35	14	0
6	2	24	36	14	24
7	2	48	37	14	48
8	3	12	38	15	12
9	3	36	39	15	36
10	4	0	40	16	0
11	4	24	41	16	24
12	4	48	42	16	48
13	5	12	43	17	12
14	5	36	44	17	36
15	6	0	45	18	0
16	6	24	46	18	24
17	6	48	47	18	48
18	7	12	48	19	12
19	7	36	49	19	36
20	8	0	50	20	0
21	8	24	51	20	24
22	8	48	52	20	48
23	9	12	53	21	12
24	9	36	54	21	36
25	10	0	55	22	0
26	10	24	56	22	24
27	10	48	57	22	48
28	11	12	58	23	12
29	11	36	59	23	36
30	12	0	60	24	0

CANON CONVERTENDI CIRCULOS ZODIACOS ET EORUM GRADUS in dierum Sexagenas & Dies.

Zodiaci Circuli.	Sexagenæ. 3æ.	2æ.	1æ.	Dies.
100	0	10	0	0
200	0	20	0	0
300	0	30	0	0
400	0	40	0	0
500	0	50	0	0
600	1	0	0	0
700	1	10	0	0
800	1	20	0	0
900	1	30	0	0
1000	1	40	0	0
1100	1	50	0	0
1200	2	0	0	0
1300	2	10	0	0
1400	2	20	0	0
1500	2	30	0	0
1600	2	40	0	0
1700	2	50	0	0
1800	3	0	0	0
1900	3	10	0	0
2000	3	20	0	0
2100	3	30	0	0
2200	3	40	0	0
2300	3	50	0	0
2400	4	0	0	0
2500	4	10	0	0
2600	4	20	0	0
2700	4	30	0	0
2800	4	40	0	0
2900	4	50	0	0
3000	5	0	0	0
4000	6	40	0	0
5000	8	20	0	0
6000	10	0	0	0

Circuli Zodiaci.	Sexagenæ. 3æ.	2æ.	1æ.	Dies
1	0	0	6	0
2	0	0	12	0
3	0	0	18	0
4	0	0	24	0
5	0	0	30	0
6	0	0	36	0
7	0	0	42	0
8	0	0	48	0
9	0	0	54	0
10	0	1	0	0
11	0	1	6	0
12	0	1	12	0
13	0	1	18	0
14	0	1	24	0
15	0	1	30	0
16	0	1	36	0
17	0	1	42	0
18	0	1	48	0
19	0	1	54	0
20	0	2	0	0
40	0	4	0	0
60	0	6	0	0
80	0	8	0	0
Gradus.				
10	0	0	0	10
20	0	0	0	20
40	0	0	0	40
60	0	0	1	0
120	0	0	2	0
180	0	0	3	0
240	0	0	4	0
300	0	0	5	0
1 zod.360	0	0	6	0

SYNOPSIS ÆRARUM USUALIUM.

Inter *Epochas* celebriores referemus *Periodi Julianæ* initium ; quamvis ipſa *Periodus* ficta ſit, & à *Scaligero* inventa. Iſta enim *Periodus* vehiculum eſt, quo tutiſſimè per annorum ſeriem vehimur.

EPOCHÆ.	Anni Periodi Julianæ.	Menſes.	
Periodus Juliana.	1	Januar.	1
Mundi Creatio.	765	Januar.	1
Æra Olympiadum.	3938	Jul.	8
Urbis conditæ Epocha.	3961	April.	21
Epocha Nabonnaſſari.	3967	Februa.	26
Initium Cyclorum Metonis.	4281	Jun.	26
Initium Periodorum Calippi.	4384	Jun.	28
Obitus Alexandri magni.	4390	Novem.	12
Æra Chaldæorum.	4403	Octob.	15
Æra Dionyſii.	4429	Mart.	25
Initium annorum CHRISTI DEI incidit in annum *Periodi Julianæ* 4713. completum.	Anni Chriſti Dei.	Menſes.	
Æra Martyrum copticarum, ſeu annorum Diocletiani.	284	Auguſt.	29
Æra Turcica Hegyræ.	622	Jul.	16
Æra Jeſdagirdica.	632	Jun.	16
Epocha correctionis anni Perſici Sultanici.	1079	Mart.	14

TABULA REDUCTIONIS DIERUM ANNI JULIANI VETERIS, ad Dies anni GREGORIANI Novi, hodie uſitati in pleriſque partibus Orbis.

A. 5 Octob. an. Chriſti	1582	Adde dies 10.	Anni Chriſti	Adde dies.	Anni Chriſti	Adde dies.	Anni Chriſti	Adde dies.	Anni Chriſti	Adde dies.
	1600 B	10	2100	14	2600	18	3100	22	3600 B	25
	1700	11	2200	15	2700	19	3200 B	22	3700	26
A. 24 Febr.	1800	12	2300	16	2800 B	19	3300	23	3800	27
	1900	13	2400 B	16	2900	20	3400	24	3900	28
	2000 B	13	2500	17	3000	21	3500	25	4000 B	28

TABULA CONVERSIONIS TEMPORUM in Dierum ſummas.

Dies in Annis

Julianis								Egypt. & Perſic.							
1	0	0	0	365	2	5	0	1	0	0	0	365	0	0	0
2	0	0	0	730	5	0	0	2	0	0	0	730	0	0	0
3	0	0	0	1095	7	5	0	3	0	0	0	1095	0	0	0
4	0	0	0	1461	0	0	0	4	0	0	0	1460	0	0	0
5	0	0	0	1826	2	5	0	5	0	0	0	1825	0	0	0
6	0	0	0	2191	5	0	0	6	0	0	0	2190	0	0	0
7	0	0	0	2556	7	5	0	7	0	0	0	2555	0	0	0
8	0	0	0	2922	0	0	0	8	0	0	0	2920	0	0	0
9	0	0	0	3287	2	5	0	9	0	0	0	3285	0	0	0
10	0	0	0	3652	5	0	0	10	0	0	0	3650	0	0	0

Dies in Menſibus

Julianis Anni Communis		Biſ.	Egyptiis.		Perſicis.	
Januarius	31	31	Thoth	30	Pharvardin	30
Februarius	59	60	Phaophi	60	Artipeheſt	60
Martius	90	90	Athyr	90	Chortat	90
Aprilis	120	121	Chœac	120	Tyrma	120
Maius	151	152	Tybi	150	Mertat	150
Junius	181	182	Mechir	180	Sachriur	180
Julius	212	213	Phamenoth	210	Meeherma	210
Auguſtus	243	244	Pharmuthi	240	Apenna habens Wahak	245
September	273	274	Pachon	270	Aderma	275
October	304	305	Payni	300	Dima	305
November	334	335	Epiphi	330	Pechman	335
December	365	366	Meſori	360	Aſphander	365
			Epagomenæ	365		

Dies in Annis Turcicis ſeu Arabicis.

Anni	Dies.	Anni	Dies.	Anni		Dies.	
1	354	14	4961	27		9568	
2	709	15	5315	28		9922	
3	1063	16	5670	29		10276	
4	1417	17	6024	30	0	10631	0
5	1772	18	6378	60	0	21262	0
6	2126	19	6733	90	0	31893	0
7	2480	20	7087	120	0	42524	0
8	2835	21	7442	150	0	53155	0
9	3189	22	7796	180	0	63786	0
10	3543	23	8150	210	0	74417	0
11	3898	24	8505	240	0	85048	0
12	4252	25	8859	270	0	95679	0
13	4607	26	9213	300	0	106310	0

Dies in Menſibus Turcicis.

Muharram	30	Sahaben	236
Sephar	59	Ramadhan	266
Rabie I	89	Scheval	295
Rabie II	118	Dulkadati	325
Giumadi I	148	Dulhaiati Dſilhitſche, Turc.	354
Giumadi II	177	in anno abundanti	355
Regeb	207		

Notæ vulgares.

In Calendario veteri concurrunt perpetuò.				In Calendario novo concurrunt ad annum 1700. excluſivè.				In Calendario novo concurrunt: Ab An. 1700. incluſivè, ad An. 1800. excluſivè.				Ab An. 1800. incluſivè, Ad an. 1900. excluſivè.			
Aureus N.	Epacta.	Cycl. ⊙	Lit. Dom	Aureus N	Epacta.	Cycl. ⊙	Lit. Dom	Aureus N	Epacta.	Cycl. ⊙	Lit. Dom	Aureus N.	Epacta.	Cycl. ⊙	Lit. Dom
1	11	1	G f	1	1	1	C b	1	*	1	D c	1	*	1	E d
2	22	2	e	2	12	2	a	2	11	2	b	2	11	2	c
3	3	3	d	3	23	3	g	3	22	3	a	3	22	3	b
4	14	4	c	4	4	4	f	4	3	4	g	4	3	4	a
5	25	5	B a	5	15	5	E d	5	14	5	F e	5	14	5	G f
6	6	6	g	6	26	6	c	6	25	6	d	6	25	6	e
7	17	7	f	7	7	7	b	7	6	7	c	7	6	7	d
8	28	8	e	8	18	8	a	8	17	8	b	8	17	8	c
9	9	9	D c	9	29	9	G f	9	28	9	A g	9	28	9	B a
10	20	10	b	10	10	10	e	10	9	10	f	10	9	10	g
11	1	11	a	11	21	11	d	11	20	11	e	11	20	11	f
12	12	12	g	12	2	12	c	12	1	12	d	12	1	12	e
13	23	13	F e	13	13	13	B a	13	12	13	C b	13	12	13	D c
14	4	14	d	14	24	14	g	14	23	14	a	14	23	14	b
15	15	15	c	15	5	15	f	15	4	15	g	15	4	15	a
16	26	16	b	16	16	16	e	16	15	16	f	16	15	16	g
17	7	17	A g	17	27	17	D c	17	26	17	E d	17	26	17	F c
18	18	18	f	18	8	18	b	18	7	18	c	18	7	18	d
19	29	19	e	19	19	19	a	19	18	19	b	19	18	19	e
		20	d			20	g			20	a			20	b
		21	C b			21	F e			21	G f			21	A g
		22	a			22	d			22	e			22	f
		23	g			23	c			23	d			23	e
		24	f			24	b			24	c			24	d
		25	E d			25	A g			25	B a			25	C b
		26	c			26	f			26	g			26	a
		27	b			27	e			27	f			27	g
		28	a			28	d			28	e			28	f

Tabula Paſchalis utriuſq; Calendarii.

Litera Dom.	Aureus Numerus.	Epactæ.	PASCHA.	Dom.p. Trinit.	Domini Advent.
D	16	23	Mar. 22	27	Novembris. 29
	2 5 10 13	22 21 20 19 18 17 16	29	26	
	4 7 12 15 18	15 14 13 12 11 10 9	April. 5	25	
	1 6 9 17	8 7 6 5 4 3 2	12	24	
	3 8 11 14 19	1 * 29 28 27 26 25 24	19	23	
E	5 16	23 22	Mar. 23	27	Novembr. 30
	2 10 13 18	21 20 19 18 17 16 15	30	26	
	1 4 7 12 15	14 13 12 11 10 9 8	April. 6	25	
	6 9 14 17	7 6 5 4 3 2 1	13	24	
	3 8 11 19	* 29 28 27 26 25 24	20	22	
F	5 16	23 22 21	Mar. 24	27	Decembr. 1
	2 7 10 13 18	20 19 18 17 16 15 14	31	26	
	1 4 12 15	13 12 11 10 9 8 7	April. 7	25	
	3 6 9 14 17	6 5 4 3 2 1 *	14	24	
	8 11 19	29 28 27 26 25 24	21	23	
G	5 13 16	23 22 21 20	Mar. 25	27	Decembr. 2.
	2 7 10 18	19 18 17 16 15 14 13	April. 1	26	
	1 4 9 12 15	12 11 10 9 8 7 6	8	25	
	3 6 14 17	5 4 3 2 1 * 29	15	24	
	8 11 19	28 27 26 25 24	22	23	
A	2 5 13 16	23 22 21 20 19	Mar. 26	27	Decembr. 3
	7 10 15 18	18 17 16 15 14 13 12	April. 2	26	
	1 4 9 12	11 10 9 8 7 6 5	9	25	
	3 6 11 14 17	4 3 2 1 * 29 28	16	24	
	8 19	27 26 25 24	23	23	
B	2 5 13 16	23 22 21 20 19 18	Mar. 27	26	Novembr. 27
	4 7 10 15 18	17 16 15 14 13 12 11	April. 3	25	
	1 9 12 17	10 9 8 7 6 5 4	10	24	
	3 6 11 14	3 2 1 * 29 28 27	17	23	
	8 19	26 25 24	24	22	
C	2 5 10 13 16	23 22 21 20 19 18 17	Mar. 28	26	Novembr. 28
	4 7 15 18	16 15 14 13 12 11 10	April. 4	25	
	1 6 9 12 17	9 8 7 6 5 4 3	11	24	
	3 11 14 19 -	2 1 * 29 28 27 26	18	23	
	8	25 24	25	22	

Reliqua Feſta Mobilia patent ex hâc tabellâ.

Dominica.	Ante *Paſcha*	dieb.	Dominica.	Poſt *Paſcha*	dieb.
	Septuageſimæ	63		Paſcha	0
	Sexageſimæ	56		Quaſimodogeniti	7
	Quinquageſimæ	49		Miſericordia	14
	Invocavit	42		Jubilate	21
	Reminiſcere	35		Cantate	28
	Oculi	28		Vocem Jucunditatis	35
	Lætare	21		Exaudi	42
	Judica	14		Penteceſte	49
	Palmarum	7		Trinitatis	56

Tabula Feſtorum.

Dies.	Januarius.		Februarius.		Martius.		Aprilis.		Maius.		Junius.	
1	Circum.	a	Ignat.	d		d		g	Phil. & Jac.	b		e
2		b	Purif. Mar.	c		e	Fran. de P.	a		e	Marcel.	f
3		c	Blaſius.	f		f		b	Inven. Cr.	d		g
4		d		g	Lucius.	g		e		e		a
5	Teleiph.	c	Agatha.	a		a		d		f		b
6	Epiphan.	f	Doroth.	b		b		c	Jo. P. Lat.	g		e
7		g		c	Tho. de Aq.	c		f		a		d
8		a		d		d		g	Ap. Mich.	b		e
9		b	Apollon.	c	40 Mart.	c		a		e	Primas.	f
10		e		f		f		b		d		g
11	Hygin.	d		g		g	Leo Pap.	e		e	Barnabas.	a
12		c		a	Gregor.	a		d		f		b
13		f		b		b		e		g	Anton.	e
14	Hilarius.	g	Valentin.	e		c	Tib. val. Max.	f	Bonifac.	a	Baſil.	d
15	Paul. Er.	a	Fau. & Jo.	d		d		g		b		e
16	Marcel.	b		c		c		a	Ubald.	e		f
17	Anton.	c		f		f		b		d		g
18	Cath. S P.	d	Simeon.	g		g	Anicet.	e		e		a
19		c		a	Joſ. Conf.	a		d	Prudent.	f	Gervaſ.	b
20	Fab. & Seb.	f		b	Cuthbert.	b		c		g		c
21	Agnes.	g		c	Benedict.	e		f		a		d
22	Vincent.	a		d		d	Soter Ca.	g		b		e
23		b		e		e	Georg.	a		c		f
24	Timoth.	c	Math. Ap.	f		f		b		d	Jo. Bapt.	g
25	Conv. Paul.	d		g	Ann. Mar.	g	Marc. Eva.	e	Urban.	e		a
26	Polycarp.	c		a		a		d		f		b
27		f		b		b		e	Jo. Pap.	g		c
28		g		e		e	Vitalis.	f		a		d
29		a				d	Cathar.	g		b	Leo.	c
30		b				e		a	Felix.	e	Pet. Ap.	f
31		c				f			Petron.	d		

Tabula Feſtorum.

Dies.	Julius.		Auguſtus.		September.		October.		November.		December.	
1		g	Lammas.	c	Ægid.	f	Remig.	a	Omn. Sanct.	d		t
2	Viſit. Mar.	a	Steph.	d		g		b	Omn. Anim.	c	Bibiana.	g
3		b		e		a		c		f		a
4		c		f		b	Franc.	d	Vital.	g	Barbara.	b
5		d	Ded. Mar.	g		c		e		a		c
6		e	Tranſ. Dom.	a		d		f		b		d
7		f		b		e	Marc. Pap.	g		c	Ambroſ.	c
8		g		c	Nat. Mar.	f		a		d	Conc. Mar.	f
9		a		d	Gorgon.	g	Dionyſ.	b		e		g
10	7 Frat.	b	Laurent.	e		a		c	Tryph.	f		a
11		c		f		b		d	Martin.	g		b
12	Nabor.	d		g		c		e		a		c
13		e		a		d		f		b	Lucia.	d
14	Bonaven.	f		b	Exalt. Cr.	e	Calliſtus.	g		c		e
15		g	Aſſum. Mar.	c		f		a		d	Euſebius	f
16		a		d	Cornelius.	g		b		c		g
17	Alexius.	b		e		a		c	Gregor.	f		a
18		c		f		b	Lucas.	d		g		b
19		d		g		c		e	Pontian.	a		c
20	Margar.	e	Bernard.	a		d		f		b		d
21		f		b	Math. Evan.	c	Hilarion.	g	Obl. Mar.	c	Tho. Ap.	e
22	Mar. Mag.	g		c		f		a		d		f
23		a		d	Linus.	g		b		e		g
24		b	Barth. Ap.	e		a		c		f		a
25	Jacob. Ap.	c		f		b	Cyſanth.	d	Catharin.	g	Nat. Chr.	b
26		d		g	Cyprian.	c		e		a	Stephan.	c
27		e		a		d		f		b	Jo. Evan.	d
28		f	Auguſt.	b		e	Sim. & Jud.	g		c	Innocent.	e
29	Martha.	g	Decoll.	c	Mich. Arch.	f		a		d	Tho. Cant.	f
30		a		d	Hieron.	g		b	Andr. Ap.	c		g
31		b		c				c			Silveſt.	a

CANON CONVERTENDI PARTES MILLESIMAS ET CENTESIMAS IN PARTES SEXAGENARIAS, & contra.

Part. Mil. Part. Sex.	100 6	200 12	300 18	400 24	500 30	600 36	700 42	800 48	900 54	1000 60

P	Sexagen. ′	‴	iv.	P	Sexagen. ″	‴	iv.
1	0	3	36	51	3	3	36
2	0	7	12	52	3	7	12
3	0	10	48	53	3	10	48
4	0	14	24	54	3	14	24
5	0	18	0	55	3	18	0
6	0	21	36	56	3	21	36
7	0	25	12	57	3	25	12
8	0	28	48	58	3	28	48
9	0	32	24	59	3	32	24
10	0	36	0	60	3	36	0
11	0	39	36	61	3	39	36
12	0	43	12	62	3	43	12
13	0	46	48	63	3	46	48
14	0	50	24	64	3	50	24
15	0	54	0	65	3	54	0
16	0	57	36	66	3	57	36
17	1	1	12	67	4	1	12
18	1	4	48	68	4	4	48
19	1	8	24	69	4	8	24
20	1	12	0	70	4	12	0
21	1	15	36	71	4	15	36
22	1	19	12	72	4	19	12
23	1	22	48	73	4	22	48
24	1	26	24	74	4	26	24
25	1	30	0	75	4	30	0
26	1	33	36	76	4	33	36
27	1	37	12	77	4	37	12
28	1	40	48	78	4	40	48
29	1	44	24	79	4	44	24
30	1	48	0	80	4	48	0
31	1	51	36	81	4	51	36
32	1	55	12	82	4	55	12
33	1	58	48	83	4	58	48
34	2	2	24	84	5	2	24
35	2	6	0	85	5	6	0
36	2	9	36	86	5	9	36
37	2	13	12	87	5	13	12
38	2	16	48	88	5	16	48
39	2	20	24	89	5	20	24
40	2	24	0	90	5	24	0
41	2	27	36	91	5	27	36
42	2	31	12	92	5	31	12
43	2	34	48	93	5	34	48
44	2	38	24	94	5	38	24
45	2	42	0	95	5	42	0
46	2	45	36	96	5	45	36
47	2	49	12	97	5	49	12
48	2	52	48	98	5	52	48
49	2	56	24	99	5	56	24
50	3	0	0	100	6	0	0

Uſus Tabulæ.

Uſus hujus Tabulæ eſt multiplex, & multum utilitatis præbet in calculo motuum Planetarum; nam quotieſcunq; Parallaxis Orbis eſt inquirenda, hanc rationem inveniendi Partem Proportionem lectoribus hic breviter deponam.

Cum Anomaliâ Orbis ſumenda eſt Parallaxis è directo gradus Signi Anomaliæ in Columnâ *NUMERI LOGARITHMICI*, & illicò habebis Parallaxin quæſitam, quæ corrigenda eſt tàm ratione Anomaliæ, quando ultra gradus adſuerint minuta, quàm ratione *NUMERI LOGARITHMETICI*, Si eadem non fuerit reperta ad unguem, quod raro evenit.

Exemplum 1. Quæratur Parallaxis Orbis annui in Jove ad Anomaliam Orbis Sig. 10. gr. 8. exiſtente *NUMERO LOGARITHMICO* 928000. è directo Sig. 10. gr. 8. ſub Columna 928000. reperitur Parallaxis gr. 7. 39. ſubtrahenda.

Si autem quærenda eſt Parallaxis Orbis quando Anomaliæ adhærent etiam minuta ultra gradus, tùm capies hoc Exemplum.

Exempl. 2. Quæratur Parallaxis Orbis annui in ♃ ad Anomaliam Orbis Sig. 2. gr. 27. 54′. 22″, ſub *NUMERO LOGARITHMICO* 930000. Primùm itaq; cum Sig. 2. gr. 27. in Tabula Parallaxeωs reperimus gr. 11. 9′, & Sig. 2. gr. 28. reſpondet gr. 11. 12′. Jam quoniam Differentia Parallaxeωs inter gr. 27. & gr. 28. creſcit ſcrup. 3′. ſumenda eſt pars proportionalis ſcrupulis 54′ 22″. Anomaliæ, ultra gr. 27. competens, & emergit 2′ 43″, quæ addenda ſunt ad præinventam Parallaxin, & habebimus veram Parallaxin Orbis annui in ♃ gr. 11. 11′. 43″.

Exemplum 3. At ſi quæratur Parallaxis Orbis Telluris in ♃ ſub *NUMERO LOGARITHMICO* 930579, manente eâdem Anomaliâ Orbis, Sig. 2. gr. 27. 54′. 22″, itaq; capio differentiam Parallaxium inter 930000. & 931000, quam invenio ſcr. 15, tum dico. Si Mille dat tot minuta differentiæ Parallaxium inter unam Columnam & alteram, quid dabit ille numerus 579, qui eſt ultra millenarium?

579. Exceſſus Numeri Logarith. Supra } 930000
15. Differentia Parallaxium intra Col. } 931000
2895
579
8 685. Hoc eſt 8′. $\frac{685}{1000}$, qui numerus in hac Tabulâ exhibet 41″. ſupra ſcrp. 8′. quæ addita ad Æquationem, ſeu Parallaxin præinventam, dant veram Parallaxin quæſitam gr. 11. 20′. 24″.

Canonum Aſtronomicorum

PARS ALTERA:

Stellarum Fixarum & Errantium Motus apparentes,

& Luminarium deliquia exhibens.

AUTHORE

VINCENTIO WING, Mathemat.

LONDINI,

Excudebat *J. M.* pro *G. Sawbridge.*

MDCLXVIII.

CANONES
MEDIORUM MOTUUM TERRÆ,
ET
RECESSIONIS ÆQUINOCTIORUM,
à primâ Stellâ Arietis.

EPOCHÆ, SEU RADICES
Mediorum motuum numeratæ.

A MUNDI ORIGINE.

		S.	gr.	′	″
Ad meridiem ultimi	Medii motus Terræ.	1	8	42	25
Decembris poſt Mun-	Aphelii.	3	0	43	54
di creationem.	Receſs. Æquinoct.	5	9	49	23

A NABONASSARO.

Ad meridiem ultimi	Medii motus Terræ.	2	27	21	36
diei Ægyptiacarum	Aphelii.	3	55	32	56
Ἐπαγομένων.	Receſs. Æquinoct.	5	54	42	45

AB ALEXANDRI OBITU.

Ad meridiem ultimi	Medii motus Terræ.	0	46	3	11
Diei Ægyptiacarum	Aphelii.	4	2	48	8
Ἐπαγομένων.	Receſs. Æquinoct.	0	0	39	8

A CHRISTO REDEMPTORE.

Ad meridiem ultimi	Medii motus Terræ.	1	37	59	51
Decembris proximè	Aphelii.	4	8	20	3
poſt ejus Nativitatem.	Receſs. Æquinoct.	0	5	10	56

CANON SEXAGENARIUS MEDIORUM MOTUUM TELLURIS.

In diebus, atque dierum Sexagenis & Scrupulis.

Sexag.		1a	2a	3a					
gr.	S.	gr.	′	″	‴	iv.			
′		S.	gr.	′	″	‴	iv.		
″			S.	gr.	′	″	‴	iv.	
‴				S.	gr.	′	″	‴	iv.
1	0	0	59	8	19	42	1	41	15
2	0	1	58	16	39	24	3	22	30
3	0	2	57	24	59	6	5	5	45
4	0	3	56	33	18	48	6	45	0
5	0	4	55	41	38	30	8	26	15
6	0	5	54	49	58	12	10	7	30
7	0	6	53	58	17	54	11	48	45
8	0	7	53	6	37	36	13	30	0
9	0	8	52	14	57	18	15	11	15
10	0	9	51	23	17	0	16	52	30
11	0	10	50	31	36	42	18	33	45
12	0	11	49	39	56	24	20	15	0
13	0	12	48	48	16	6	21	56	15
14	0	13	47	56	35	48	23	37	30
15	0	14	47	4	55	30	25	18	45
16	0	15	46	13	15	12	27	0	0
17	0	16	45	21	34	54	28	41	15
18	0	17	44	29	54	36	30	22	30
19	0	18	43	38	14	18	32	3	45
20	0	19	42	46	34	0	33	45	0
21	0	20	41	54	53	42	35	26	15
22	0	21	41	3	13	24	37	7	30
23	0	22	40	11	33	6	38	48	45
24	0	23	39	19	52	48	40	30	0
25	0	24	38	28	12	30	42	11	15
26	0	25	37	36	32	12	43	52	30
27	0	26	36	44	51	54	45	33	45
28	0	27	35	53	11	36	47	15	0
29	0	28	35	1	31	18	48	56	15
30	0	29	34	9	51	0	50	37	30
′	gr.	′	″	‴	iv.				
″	′	″	‴	iv.					
‴	″	‴	iv.						
iv.	‴	iv.							

Sexag.		1a	2a	3a					
gr.	S.	gr.	′	″	‴	iv.			
′		S.	gr.	′	″	‴	iv.		
″			S.	gr.	′	″	‴	iv.	
‴				S.	gr.	′	″	‴	iv.
31	0	30	33	18	10	42	52	18	45
32	0	31	32	26	30	24	54	0	0
33	0	32	31	34	50	6	55	41	15
34	0	33	30	43	9	48	57	22	30
35	0	34	29	51	29	30	59	3	45
36	0	35	28	59	49	13	0	45	0
37	0	36	28	8	8	55	2	26	15
38	0	37	27	16	28	37	4	7	30
39	0	38	26	24	48	19	5	48	45
40	0	39	25	33	8	1	7	30	0
41	0	40	24	41	27	43	9	11	15
42	0	41	23	49	47	25	10	52	30
43	0	42	22	58	7	7	12	33	45
44	0	43	22	6	26	49	14	15	0
45	0	44	21	14	46	31	15	56	15
46	0	45	20	23	6	13	17	37	30
47	0	46	19	31	25	55	19	18	45
48	0	47	18	39	45	37	21	0	0
49	0	48	17	48	5	19	22	41	15
50	0	49	16	56	25	1	24	22	30
51	0	50	16	4	44	43	26	3	45
52	0	51	15	13	4	25	27	45	0
53	0	52	14	21	24	7	29	26	15
54	0	53	13	29	43	49	31	7	30
55	0	54	12	38	3	31	32	48	45
56	0	55	11	46	23	13	34	30	0
57	0	56	10	54	42	55	36	11	15
58	0	57	10	3	2	37	37	52	30
59	0	58	9	11	22	19	39	33	45
60	0	59	8	19	42	1	41	15	0
′	gr.	′	″	‴	iv.				
″	′	″	‴	iv.					
‴	″	‴	iv.						
iv.	‴	iv.							

CANON SEXAGENARIUS MEDIORUM MOTUUM APHELII TELLURIS.

In diebus, atque dierum Sexagenis & Scrupulis.

Sexag. gr. / ′ / ″ / ‴	S.	12 gr. / S.	22 ′ / gr. / S.	32 ″ / ′ / gr. / S.	‴ / ″ / ′ / gr.	iv. / ‴ / ″ / ′	iv. / ‴ / ″	iv. / ‴	iv.
1	0	0	0	0	10	7	25	18	22
2	0	0	0	0	20	14	50	36	44
3	0	0	0	[illegible]	30	22	15	55	6
4	0	0	0	0	40	29	41	13	28
5	0	0	0	0	50	37	6	31	50
6	0	0	0	1	0	44	31	50	12
7	0	0	0	1	10	51	57	8	34
8	0	0	0	1	20	59	22	26	56
9	0	0	0	1	31	6	47	45	18
10	0	0	0	1	41	14	13	3	40
11	0	0	0	1	51	21	38	22	2
12	0	0	0	2	1	29	3	40	24
13	0	0	0	2	11	36	28	58	40
14	0	0	0	2	21	43	54	17	8
15	0	0	0	2	31	51	19	35	30
16	0	0	0	2	41	58	44	53	52
17	0	0	0	2	52	6	10	12	14
18	0	0	0	3	2	13	35	30	36
19	0	0	0	3	12	21	0	48	58
20	0	0	0	3	22	28	26	7	20
21	0	0	0	3	32	35	51	25	42
22	0	0	0	3	42	43	16	44	4
23	0	0	0	3	52	50	42	2	26
24	0	0	0	4	2	58	7	20	48
25	0	0	0	4	13	5	32	39	10
26	0	0	0	4	23	12	57	57	32
27	0	0	0	4	33	20	23	15	54
28	0	0	0	4	43	27	48	34	16
29	0	0	0	4	53	35	13	52	38
30	0	0	0	5	3	42	39	11	0
′ / ″ / ‴ / iv.	gr. / ′ / ″ / ‴	′ / ″ / ‴ / iv.	″ / ‴ / iv.	‴ / iv.	iv.				

Sexag. gr. / ′ / ″ / ‴	S.	12 gr. / S.	22 ′ / gr. / S.	32 ″ / ′ / gr. / S.	‴ / ″ / ′ / gr.	iv. / ‴ / ″ / ′	iv. / ‴ / ″	iv. / ‴	iv.
31	0	0	0	5	13	50	4	29	22
32	0	0	0	5	23	57	20	47	44
33	0	0	0	5	34	4	55	6	0
34	0	0	0	5	44	12	20	24	28
35	0	0	0	5	54	19	45	42	50
35	0	0	0	6	4	27	11	1	12
37	0	0	0	6	14	34	36	19	34
38	0	0	0	6	24	42	1	37	56
39	0	0	0	6	34	49	26	56	18
40	0	0	0	6	44	56	52	14	40
41	0	0	0	6	55	4	17	33	2
42	0	0	0	7	5	11	42	51	24
43	0	0	0	7	15	19	8	9	46
44	0	0	0	7	25	26	33	28	8
45	0	0	0	7	35	33	58	46	30
46	0	0	0	7	45	41	24	4	52
47	0	0	0	7	55	48	49	23	14
48	0	0	0	8	5	56	14	41	36
49	0	0	0	8	16	3	39	59	58
50	0	0	0	8	26	11	5	18	20
51	0	0	0	8	35	18	30	30	42
52	0	0	0	8	46	25	55	55	4
53	0	0	0	8	56	33	21	13	26
54	0	0	0	0	6	40	45	31	48
55	0	0	0	9	16	48	11	50	10
56	0	0	0	9	26	55	37	8	32
57	0	0	0	9	37	3	2	26	54
58	0	0	0	0	47	10	27	45	16
59	0	0	0	9	57	17	53	3	38
60	0	0	0	10	7	25	18	22	0
′ / ″ / ‴ / iv.	gr. / ′ / ″ / ‴	′ / ″ / ‴ / iv.	″ / ‴ / iv.	‴ / iv.	iv.				

CANON SEXAGENARIUS RETROCESSIONIS ÆQUINOCTIORUM à primâ Stellâ Arietis.

In diebus, atque dierum Sexagenis & Scrupulis.

Sexag.		1ª	2ª	3ª					
gr.	S.	gr.	′	″	‴	iv.			
′		S.	gr.	′	″	‴	iv.		
″			S.	gr.	′	″	‴	iv.	
‴				S.	gr.	′	″	‴	iv.
1	0	0	0	0	8	17	24	45	50
2	0	0	0	0	16	34	49	31	40
3	0	0	0	0	24	52	14	17	30
4	0	0	0	0	33	9	39	3	20
5	0	0	0	0	41	27	3	49	10
6	0	0	0	0	49	44	28	35	0
7	0	0	0	0	58	1	53	20	50
8	0	0	0	1	6	19	18	6	40
9	0	0	0	1	14	36	42	52	30
10	0	0	0	1	22	54	7	38	20
11	0	0	0	1	31	11	32	24	10
12	0	0	0	1	39	28	57	10	0
13	0	0	0	1	47	46	21	55	50
14	0	0	0	1	56	3	46	41	40
15	0	0	0	2	4	21	11	27	30
16	0	0	0	2	12	38	36	13	20
17	0	0	0	2	20	56	0	59	10
18	0	0	0	2	29	13	25	45	0
19	0	0	0	2	37	30	50	30	50
20	0	0	0	2	45	48	15	16	40
21	0	0	0	2	54	5	40	2	30
22	0	0	0	3	2	23	4	48	20
23	0	0	0	3	10	40	29	34	10
24	0	0	0	3	18	57	54	20	0
25	0	0	0	3	27	15	19	5	50
26	0	0	0	3	35	32	43	51	40
27	0	0	0	3	43	50	8	37	30
28	0	0	0	3	52	7	33	23	20
29	0	0	0	4	0	24	58	9	10
30	0	0	0	4	8	42	22	55	0
′	gr.	′	″	‴	iv.				
″	′	″	‴	iv.					
‴	″	‴	iv.						
iv.	‴	iv.							

Sexag.		1ª	2ª	3ª					
gr.	S.	gr.	′	″	‴	iv.			
′		S.	gr.	′	″	‴	iv.		
″			S.	gr.	′	″	‴	iv.	
‴				S.	gr.	′	″	‴	iv.
31	0	0	0	4	16	59	47	40	50
32	0	0	0	4	25	17	12	26	40
33	0	0	0	4	33	34	37	12	30
34	0	0	0	4	41	52	1	58	20
35	0	0	0	4	50	9	26	44	10
36	0	0	0	4	58	26	51	30	0
37	0	0	0	5	6	44	16	15	50
38	0	0	0	5	15	1	41	1	40
39	0	0	0	5	23	19	5	47	30
40	0	0	0	5	31	36	30	33	20
41	0	0	0	5	39	53	55	19	10
42	0	0	0	5	48	11	20	5	0
43	0	0	0	5	56	28	44	50	50
44	0	0	0	6	4	46	9	36	40
45	0	0	0	6	13	3	34	22	30
46	0	0	0	6	21	20	59	8	20
47	0	0	0	6	29	38	23	54	10
48	0	0	0	6	37	55	48	40	0
49	0	0	0	6	45	13	13	25	50
50	0	0	0	6	54	30	38	11	40
51	0	0	0	7	2	48	2	57	30
52	0	0	0	7	11	5	27	43	20
53	0	0	0	7	19	22	52	29	10
54	0	0	0	7	[illegible]	40	17	15	0
55	0	0	0	7	35	57	42	0	50
56	0	0	0	7	44	15	6	46	40
57	0	0	0	7	52	32	31	32	30
58	0	0	0	8	0	49	56	18	20
59	0	0	0	8	9	7	21	4	10
60	0	0	0	8	17	24	45	50	0
′	gr.	′	″	‴	iv.				
″	′	″	‴	iv.					
‴	″	‴	iv.						
iv.	‴	iv.							

RADICES Mediorum Motuum TERRÆ in Annis Julianis collectis, juxta formam vulgarem.

EPOCHÆ.	Longit. Terræ S.	gr.	′	″	Aphelium. S.	gr.	′	″	Rec. Æquinoct. S.	gr.	′	″
Mundi 1	2	8	42	25	6	0	43	54	10	9	49	22
Chriſti 1	3	7	59	51	8	8	20	3	0	5	1	50
1601	3	19	57	54	9	5	43	28	0	27	36	43
1621	3	20	6	52	9	6	4	0	0	27	53	32
1641	3	20	15	51	9	6	24	33	0	28	10	21
1661	3	20	24	49	9	6	45	5	0	28	27	11
1681	3	20	33	48	9	7	5	38	0	28	44	0

Medii Motus TERRÆ in Annis Julianis expanſis.

1	11	29	45	40	0	0	1	2	0	0	0	50
2	11	29	31	29	0	0	2	3	0	0	1	41
3	11	29	16	59	0	0	3	5	0	0	2	31
B 4	0	0	1	48	0	0	4	6	0	0	3	22
5	11	29	47	27	0	0	5	8	0	0	4	12
6	11	29	33	7	0	0	6	10	0	0	5	3
7	11	29	18	47	0	0	7	11	0	0	5	53
B 8	0	0	3	35	0	0	8	13	0	0	6	44
9	11	29	49	15	0	0	9	15	0	0	7	34
10	11	29	34	55	0	0	10	16	0	0	8	25
11	11	29	20	35	0	0	11	18	0	0	9	15
B 12	0	0	5	23	0	0	12	19	0	0	10	6
13	11	29	51	3	0	0	13	21	0	0	10	56
14	11	29	36	43	0	0	14	23	0	0	11	46
15	11	29	22	23	0	0	15	24	0	0	12	37
B 16	0	0	7	11	0	0	16	26	0	0	13	27
17	11	29	52	51	0	0	17	28	0	0	14	18
18	11	29	38	30	0	0	18	29	0	0	15	8
19	11	29	24	10	0	0	19	31	0	0	15	59
B 20	0	0	8	58	0	0	20	33	0	0	16	49
40	0	0	17	57	0	0	41	5	0	0	33	39
60	0	0	26	56	0	1	1	38	0	0	50	28
80	0	0	35	54	0	1	22	10	0	1	7	18
100	0	0	44	53	0	1	42	42	0	1	24	7
200	0	1	29	45	0	3	25	26	0	2	48	13
300	0	2	14	38	0	5	8	8	0	4	12	20
400	0	2	59	31	0	6	50	51	0	5	30	27
500	0	3	44	23	0	8	33	34	0	7	0	33
600	0	4	29	16	0	10	16	17	0	8	24	40
700	0	5	14	9	0	11	58	59	0	9	48	47
800	0	5	59	1	0	13	41	42	0	11	12	53
900	0	6	43	54	0	15	24	25	0	12	37	0
1000	0	7	28	47	0	17	7	8	0	4	1	7
2000	0	14	57	33	1	4	14	16	0	28	2	13
3000	0	22	26	20	1	21	21	24	1	12	3	20
4000	0	29	55	6	2	8	28	32	1	26	4	27
5000	1	7	23	53	2	25	35	40	2	10	5	33
6000	1	14	52	40	3	12	42	48	2	24	6	40

Medii Motus TERRÆ in Menſibus Anni Communis.

MENSES.	Longit. Terræ S.	gr.	′	″	Aphelium. S.	gr.	′	″	Rec. Æquinoct. S.	gr.	′	″
Januarius.	0	0	0	0	0	0	0	0	0	0	0	0
Februarius.	1	0	33	18	0	0	0	5	0	0	0	4
Martius.	1	28	9	11	0	0	0	10	0	0	0	8
Aprilis.	2	28	42	29	0	0	0	15	0	0	0	12
Maius.	3	28	16	39	0	0	0	20	0	0	0	17
Junius.	4	28	49	58	0	0	0	25	0	0	0	21
Julius.	5	28	24	7	0	0	0	31	0	0	0	25
Auguſtus.	6	28	57	26	0	0	0	36	0	0	0	29
September.	7	29	30	44	0	0	0	41	0	0	0	34
October.	8	29	4	54	0	0	0	46	0	0	0	38
November.	9	29	38	12	0	0	0	51	0	0	0	42
December.	10	29	12	22	0	0	0	56	0	0	0	46

Medii Motus TERRÆ in Diebus, Horis & Scrupulis.

Dies.	Longit. ⊖ gr.	′	″	Aphel. ′	″	Rec. Æq. ′	″
1	0	59	8	0	0	0	0
2	1	58	17	0	0	0	0
3	2	57	25	0	0	0	0
4	3	56	33	0	1	0	1
5	4	55	42	0	1	0	1
6	5	54	50	0	1	0	1
7	6	53	58	0	1	0	1
8	7	53	7	0	1	0	1
9	8	52	15	0	2	0	1
10	9	51	23	0	2	0	1
11	10	50	32	0	2	0	2
12	11	49	40	0	2	0	2
13	12	48	48	0	2	0	2
14	13	47	57	0	2	0	2
15	14	47	5	0	3	0	2
16	15	46	13	0	3	0	2
17	16	45	22	0	3	0	2
18	17	44	30	0	3	0	2
19	18	43	38	0	3	0	3
20	19	42	47	0	3	0	3
21	20	41	55	0	4	0	3
22	21	41	3	0	4	0	3
23	22	40	12	0	4	0	3
24	23	39	20	0	4	0	3
25	25	38	28	0	4	0	3
26	25	37	37	0	4	0	4
27	26	36	45	0	5	0	4
28	27	35	53	0	5	0	4
29	28	35	1	0	5	0	4
30	29	34	10	0	5	0	4
31	30	33	18	0	5	0	4

Ho. ′	Long. ⊖ gr.	′	″	Ho. ′	Long. ⊖ gr.	′	″
1	0	2	28	31	1	16	23
2	0	4	56	32	1	18	51
3	0	7	24	33	1	21	19
4	0	9	51	34	1	23	47
5	0	12	19	35	1	26	15
6	0	14	47	36	1	28	43
7	0	17	15	37	1	31	11
8	0	19	43	38	1	33	39
9	0	22	11	39	1	36	6
10	0	24	38	40	1	38	34
11	0	27	6	41	1	41	2
12	0	29	34	42	1	43	30
13	0	32	2	43	1	45	58
14	0	34	30	44	1	48	25
15	0	36	58	45	1	50	53
16	0	39	26	46	1	53	21
17	0	41	53	47	1	55	49
18	0	44	21	48	1	58	17
19	0	46	49	49	2	0	44
20	0	49	17	50	2	3	12
21	0	51	45	51	2	5	40
22	0	54	13	52	2	8	8
23	0	56	41	53	2	10	36
24	0	59	8	54	2	13	3
25	1	1	36	55	2	15	31
26	1	4	4	56	2	17	59
27	1	6	32	57	2	20	27
28	1	9	0	58	2	22	55
29	1	11	27	59	2	25	23
30	1	13	55	60	2	27	51
″	′	″	‴	″	′	″	‴

CANON

PROSTHAPHÆRESIUM TELLURIS

in Ellipſi.

Unà cum

TABULA REFRACTIONUM TYCHONICA.

Proſthaphæreſes ☉ in Ellipſi.

Grad.	Sig. 0.		Sig. 1.		Sig. 2.		Grad.
	Æquatio Subtr.	Logar.	Æquatio Subtr.	Logar.	Æquatio Subtr.	Logar.	
	gr. ′ ″		gr. ′ ″		gr. ′ ″		
0	0 0 0	500773	0 59 32	500674	1 44 28	500400	30
1	0 2 5	500773	1 1 21	500667	1 45 34	500388	29
2	0 4 9	500772	1 3 10	500660	1 46 38	500376	28
3	0 6 13	500772	1 4 57	500653	1 47 41	500365	27
4	0 8 16	500771	1 6 42	500646	1 48 40	500353	26
5	0 10 19	500770	1 8 26	500639	1 49 38	500341	25
6	0 12 22	500769	1 10 9	500631	1 50 34	500329	24
7	0 14 25	500767	1 11 51	500623	1 51 29	500316	23
8	0 16 28	500765	1 13 32	500615	1 52 22	500304	22
9	0 18 30	500763	1 15 11	500607	1 53 13	500292	21
10	0 20 32	500761	1 16 49	500599	1 54 1	500279	20
11	0 22 35	500759	1 18 26	500590	1 54 47	500266	19
12	0 24 37	500757	1 20 2	500582	1 55 31	500254	18
13	0 26 39	500754	1 21 36	500573	1 56 14	500241	17
14	0 28 41	500751	1 23 9	500564	1 56 55	500228	16
15	0 30 42	500748	1 24 41	500555	1 57 34	500216	15
16	0 32 43	500744	1 26 11	500546	1 58 10	500203	14
17	0 34 44	500740	1 27 40	500537	1 58 44	500190	13
18	0 36 43	500736	1 29 8	500527	1 59 16	500177	12
19	0 38 41	500732	1 30 34	500517	1 59 46	500164	11
20	0 40 38	500728	1 21 58	500507	2 0 14	500151	10
21	0 42 35	500723	1 33 20	500407	2 0 40	500137	9
22	0 44 31	500719	1 34 41	500487	2 1 4	500124	8
23	0 46 27	500714	1 36 0	500477	2 1 26	500111	7
24	0 48 22	500709	1 37 17	500466	2 1 46	500098	6
25	0 50 16	500704	1 38 33	500455	2 2 3	500084	5
26	0 52 9	500698	1 39 48	500444	2 2 18	500071	4
27	0 54 1	500693	1 41 1	500433	2 2 30	500057	3
28	0 55 52	500687	1 42 12	500422	2 2 40	500044	2
29	0 57 42	500681	1 43 21	500411	2 2 48	500030	1
30	0 59 32	500674	1 44 28	500400	2 2 54	500017	0
	Adde		Adde		Adde		
	Sig. 11.		Sig. 10.		Sig. 9.		

Proſthaphæreſes ⊖ in Ellipſi.

Grad.	Sig. 3. Æquatio Subtr. gr. ′ ″	Sig. 3. Logar.	Sig. 4. Æquatio Subtr. gr. ′ ″	Sig. 4. Logar.	Sig. 5. Æquatio Subtr. gr. ′ ″	Sig. 5. Logar.	Grad.
0	2 2 53	500017	1 48 23	499624	1 3 26	499329	30
1	2 2 56	500003	1 47 20	499613	1 1 32	499322	29
2	2 2 56	499989	1 46 15	499601	0 59 37	499316	28
3	2 2 55	499976	1 45 9	499589	0 57 40	499309	27
4	2 2 52	499963	1 44 1	499577	0 55 42	499302	26
5	2 2 47	499949	1 42 50	499565	0 53 43	499296	25
6	2 2 39	499936	1 41 37	499554	0 51 43	499290	24
7	2 2 29	499923	1 40 22	499543	0 49 42	499285	23
8	2 2 17	499909	1 39 4	499532	0 47 39	499279	22
9	2 2 2	499896	1 37 45	499521	0 45 35	499274	21
10	2 1 46	499883	1 36 24	499510	0 43 31	499269	20
11	2 1 28	499868	1 35 3	499499	0 41 26	499264	19
12	2 1 7	499855	1 33 39	499488	0 39 20	499260	18
13	2 0 44	499842	1 22 2	499478	0 37 14	499256	17
14	2 0 18	499828	1 30 44	499468	0 35 6	492252	16
15	1 59 49	499815	1 20 13	499458	0 32 58	499248	15
16	1 59 19	499802	1 27 41	499447	0 30 50	499245	14
17	1 58 47	499789	1 26 7	499437	0 28 41	499241	13
18	1 58 12	499776	1 24 32	499428	0 26 31	499238	12
19	1 57 35	499763	1 22 56	499419	0 24 21	499235	11
20	1 56 56	499750	1 21 18	499410	0 22 10	499233	10
21	1 56 14	499737	1 19 38	499401	0 19 59	499230	9
22	1 55 20	499724	1 17 56	499202	0 17 48	499228	8
23	1 54 44	499711	1 16 12	499384	0 15 36	499226	7
24	1 53 56	499698	1 14 26	499375	0 13 23	499225	6
25	1 53 5	499686	1 12 40	499367	0 11 10	499223	5
26	1 52 12	499673	1 10 52	499359	0 8 57	499222	4
27	1 51 18	490661	1 9 2	499351	0 6 43	499221	3
28	1 50 21	409648	1 7 11	499344	0 4 29	499220	2
29	1 49 23	499636	1 5 18	409336	0 .2 15	499220	1
30	1 48 23	499624	1 3 26	499329	0 0 0	499220	0
	Adde		Adde		Adde		
	Sig. 8.		Sig. 7.		Sig. 6.		

TABULA REFRACTIONUM TRIPLEX,

TYCHONIS BRAHE diutinis & multiplicibus Obſervationibus confirmata, potiſſimùm in freto SUNDICO, quo mare Balthicum Oceano Germanico infunditur : partim verò etiam in Regni BOHEMIÆ arce Cæſarea BENATICA: aere defæcato, quàm fieri potuit, ad hoc electo.

Altitudo	Refract. ☉.		Refract. ☽.		Refract. ✳	
Gr.	'	''	'	''	'	''
0	34	0	33	0	30	0
1	26	0	25	0	21	30
2	20	0	20	0	15	50
3	17	0	17	0	12	30
4	15	30	15	20	11	0
5	14	30	14	20	10	0
6	13	30	13	50	9	0
7	12	45	12	45	8	15
8	11	15	12	0	6	45
9	10	30	11	20	6	0
10	10	0	10	45	5	30
11	9	30	10	10	5	0
12	9	0	9	35	4	30
13	8	30	9	0	4	0
14	8	0	8	30	3	30
15	7	30	8	0	3	0
16	7	0	7	30	2	30
17	6	30	7	0	2	0
18	5	45	6	30	1	15
19	5	0	6	0	0	30
20	4	30	5	30	0	0
21	4	0	5	0	0	0
22	3	30	4	35	0	0

Altitudo	Refract. ☉.		Refract. ☽.	
Gr.	'	''	'	''
23	3	10	4	10
24	2	50	3	45
25	2	30	3	20
26	2	15	3	0
27	2	0	2	40
28	1	45	2	20
29	1	35	2	0
30	1	25	1	40
31	1	15	1	30
32	1	05	1	20
33	0	55	1	10
34	0	45	1	0
35	0	35	0	50
36	0	30	0	45
37	0	25	0	40
38	0	20	0	35
39	0	15	0	30
40	0	10	0	25
41	0	9	0	20
42	0	8	0	15
43	0	7	0	10
44	0	6	0	5
45	0	5	0	0

CANONES MEDIORUM MOTUUM LUNÆ.

EPOCHÆ, SEU RADICES

Mediorum motuum Lunæ computatæ.

A MUNDI ORIGINE.

		S.	gr.	′	″
Ad meridiem ultimi	Medii motus ☽ à ☉	1	31	17	39
Decemb. proximè poſt	Apogæi Lunæ	2	24	21	41
Mundum conditum.	Nodi Boræi.	5	29	28	39

A NABONASSARO.

Ad meridiem ultimi	Medii motus ☽ à ☉	0	59	13	0
diei Ægyptiacarum	Apogæi Lunæ	2	9	24	23
Ἐπαγομένων.	Nodi Borei.	5	13	55	36

A MORTE ALEXANDRI.

Ad meridiem ultimi	Medii motus ☽ à ☉	4	59	20	30
Diei Ægyptiacarum	Apogæi Lunæ	1	31	24	44
Ἐπαγομένων.	Nodi Boræi.	0	38	35	40

A CHRISTO DEO.

Ad meridiem ultimi	Medii motus ☽ à ☉	3	24	32	17
Decembris proximè	Apogæi Lunæ	4	40	50	14
poſt ejus Nativitatem.	Nodi Boræi.	4	28	30	54

ANON SEXAGENARIVS MEDIORVM MOTVVM LVNÆ A SOLE.

In diebus, atque dierum Sexagenis & Scrupulis.

Sexag.		1z	2z	3z					
gr.	S.	gr.	'	"	'''	iv.			
'		S.	gr.	'	"	'''	iv.		
"			S.	gr.	'	"	'''	iv.	
'''				S.	gr.	'	"	'''	iv.
1	0	12	11	26	41	31	6	40	46
2	0	24	22	53	23	2	13	21	32
3	0	36	34	20	4	33	20	2	18
4	0	48	45	46	46	4	26	43	4
5	1	0	57	13	27	35	33	23	50
6	1	13	8	40	9	6	40	4	36
7	1	25	20	6	50	37	46	45	22
8	1	37	31	33	32	8	53	26	8
9	1	49	43	0	13	40	0	6	54
10	2	1	54	26	55	11	6	47	40
11	2	14	5	53	36	42	13	28	26
12	2	26	17	20	18	13	20	9	12
13	2	38	28	46	59	44	26	49	58
14	2	50	40	13	41	15	33	30	44
15	3	2	51	40	22	46	40	11	30
16	3	15	3	7	4	17	46	52	16
17	3	27	14	33	45	48	53	33	2
18	3	39	26	0	27	20	0	13	48
19	3	51	37	27	8	51	6	54	34
20	4	3	48	53	50	22	13	35	20
21	4	16	0	20	31	53	20	16	6
22	4	28	11	47	13	24	26	56	52
23	4	40	23	13	54	55	33	37	38
24	4	52	34	40	36	26	40	18	24
25	5	4	40	7	17	57	46	59	10
26	5	16	57	33	59	28	53	39	56
27	5	29	9	0	41	0	0	20	42
28	5	41	20	27	22	31	7	1	28
29	5	53	31	54	4	2	13	42	14
30	6	5	43	20	45	33	20	23	0
'	gr.	'	"	'''	iv.				
"	'	"	'''	iv.					
'''	"	'''	iv.						
iv.	'''	iv.							

Sexag.		1z	2z	3z					
gr.	S.	gr.	'	"	'''	iv.			
'		S.	gr.	'	"	'''	iv.		
"			S.	gr.	'	"	'''	iv.	
'''				S.	gr.	'	"	'''	iv.
31	6	17	54	47	27	4	27	3	46
32	6	30	6	14	8	35	33	44	32
33	6	42	17	40	50	6	40	25	18
34	6	54	29	7	31	37	47	6	4
35	7	6	40	34	13	8	53	46	50
36	7	18	52	0	54	40	0	27	36
37	7	31	3	27	36	11	7	8	22
38	7	43	14	54	17	42	13	49	8
39	7	55	26	20	59	13	20	29	54
40	8	7	37	47	40	44	27	10	40
41	8	19	49	14	22	15	33	51	26
42	8	32	0	41	3	46	40	32	12
43	8	44	12	7	45	17	47	12	58
44	8	56	23	34	26	48	53	53	44
45	9	8	35	1	8	20	0	34	30
46	9	20	46	27	49	51	7	15	16
47	9	32	57	54	31	22	13	56	2
48	9	45	9	21	12	53	20	36	48
49	9	57	20	47	54	24	27	17	34
50	10	9	32	14	35	55	33	58	20
51	10	21	43	41	17	26	40	39	6
52	10	33	55	7	58	57	47	19	52
53	10	46	6	34	40	28	54	0	38
54	10	58	18	1	22	0	0	41	24
55	11	10	29	28	3	31	7	22	10
56	11	22	40	54	45	2	14	2	56
57	11	34	52	21	26	33	20	43	42
58	11	47	3	48	8	4	27	24	28
59	11	59	15	14	49	35	34	5	14
60	12	11	26	41	31	6	40	46	0
'	gr.	'	"	'''	iv.				
"	'	"	'''	iv.					
'''	"	'''	iv.						
iv.	'''	iv.							

CANON SEXAGENARIUS MEDIORUM MOTUUM APOGÆI LUNÆ.

In diebus, atque dierum Sexagenis & Scrupulis.

Sexag.		1ª	2ª	3ª					
gr.	S.	gr.	′	″	‴	iv.			
′		S.	gr.	′	″	‴	iv.		
″			S.	gr.	′	″	‴	iv.	
‴				S.	gr.	′	″	‴	iv.
1	0	0	6	41	4	49	52	26	18
2	0	0	13	22	9	39	44	52	36
3	0	0	20	3	14	29	37	18	54
4	0	0	26	44	19	19	29	45	12
5	0	0	33	25	24	9	22	11	30
6	0	0	40	6	28	59	14	37	48
7	0	0	46	47	33	49	7	4	6
8	0	0	53	28	38	28	59	30	24
9	0	1	0	9	43	28	51	56	42
10	0	1	6	50	48	18	44	23	0
11	0	1	13	31	53	8	36	49	18
12	0	1	20	12	57	58	29	15	36
13	0	1	26	54	2	48	21	41	54
14	0	1	33	35	7	38	14	8	12
15	0	1	40	10	12	28	6	34	30
16	0	1	46	57	17	17	59	0	48
17	0	1	53	38	22	7	51	27	6
18	0	2	0	19	26	57	42	53	24
19	0	2	7	0	31	47	36	19	42
20	0	2	13	41	35	37	28	46	0
21	0	2	20	22	41	27	21	12	18
22	0	2	27	3	46	17	13	38	36
23	0	2	33	44	51	7	6	4	54
24	0	2	40	25	55	56	58	31	12
25	0	2	47	7	0	45	50	57	30
26	0	2	53	48	5	36	42	23	48
27	0	3	0	29	10	26	35	50	6
28	0	3	7	10	15	16	28	16	24
29	0	3	13	51	20	6	20	42	42
30	0	3	20	32	24	56	13	9	0
′	gr.	′	″	‴	iv.				
″	′	″	‴	iv.					
‴	″	‴	iv.						
iv.	‴	iv.							

Sexag.		1ª	2ª	3ª					
gr.	S.	gr.	′	″	‴	iv.			
′		S.	gr.	′	″	‴	iv.		
″			S.	gr.	′	″	‴	iv.	
‴				S.	gr.	′	″	‴	iv.
31	0	3	27	13	29	46	5	35	18
32	0	3	33	54	34	35	58	1	36
33	0	3	40	35	39	25	50	27	54
34	0	3	47	16	44	15	42	54	12
35	0	3	53	57	49	5	35	20	30
36	0	4	0	38	53	55	27	46	48
37	0	4	7	19	58	45	20	13	6
38	0	4	14	1	3	35	12	39	24
39	0	4	20	42	8	25	5	5	42
40	0	4	27	23	13	14	57	32	0
41	0	4	34	4	18	4	49	58	18
42	0	4	40	45	22	54	42	24	36
43	0	4	47	26	27	44	34	50	54
44	0	4	54	7	32	34	27	17	12
45	0	5	0	48	37	24	19	43	30
46	0	5	7	29	42	14	12	9	48
47	0	5	14	10	47	4	4	36	6
48	0	5	20	51	51	53	57	2	24
49	0	5	27	32	56	43	49	28	42
50	0	5	34	14	1	33	41	55	0
51	0	5	40	55	6	23	34	21	18
52	0	5	47	36	11	13	26	47	36
53	0	5	54	17	16	3	19	13	54
54	0	6	0	58	20	52	11	40	12
55	0	6	7	39	25	43	4	6	30
56	0	6	14	20	30	32	56	32	48
57	0	6	21	1	35	22	48	59	0
58	0	6	27	42	40	12	41	25	24
59	0	6	34	23	45	2	33	51	42
60	0	6	41	4	49	52	26	18	0
′	gr.	′	″	‴	iv.				
″	′	″	‴	iv.					
‴	″	‴	iv.						
iv.	‴	iv.							

CANON SEXAGENARIUS MEDIORUM MOTUUM NODI BOREI LUNÆ.

In diebus, atque dierum Sexagenis & Scrupulis.

Sexag.		1x	2x	3x					
gr.	S.	gr.	′	″	‴	iv.			
′		S.	gr.	′	″	‴	iv.		
″			S.	gr.	′	″	‴	iv.	
‴				S.	gr.	′	″	‴	iv.
1	0	0	3	10	38	18	10	35	17
2	0	0	6	21	16	36	21	10	34
3	0	0	9	31	54	54	31	45	51
4	0	0	12	42	33	12	42	21	8
5	0	0	15	53	11	30	52	56	25
6	0	0	19	3	49	49	3	31	42
7	0	0	22	14	28	7	14	6	59
8	0	0	25	25	6	25	24	42	16
9	0	0	28	35	44	43	35	17	33
10	0	0	31	46	23	1	45	52	50
11	0	0	34	57	1	19	56	28	7
12	0	0	38	7	39	38	7	3	24
13	0	0	41	18	17	56	17	38	41
14	0	0	44	28	56	14	28	13	58
15	0	0	47	39	34	32	38	49	15
16	0	0	50	50	12	50	49	24	32
17	0	0	54	0	51	8	59	59	49
18	0	0	57	11	29	27	10	35	6
19	0	1	0	22	7	45	21	10	23
20	0	1	3	32	46	3	31	45	40
21	0	1	6	43	24	21	42	20	57
22	0	1	9	54	2	39	52	56	14
23	0	1	13	4	40	58	3	31	31
24	0	1	16	15	19	16	14	6	48
25	0	1	19	25	57	34	24	42	5
26	0	1	22	36	35	52	35	17	22
27	0	1	25	47	14	10	45	52	39
28	0	1	28	58	52	28	56	27	56
29	0	1	32	8	30	47	7	3	13
30	0	1	35	19	9	5	17	38	30
′	gr.	′	″	‴	iv.				
″	′	″	‴	iv.					
‴	″	‴	iv.						
iv.	‴	iv.							

Sexag.		1x	2x	3x					
gr.	S.	gr.	′	″	‴	iv.			
′		S.	gr.	′	″	‴	iv.		
″			S.	gr.	′	″	‴	iv.	
‴				S.	gr.	′	″	‴	iv.
31	0	1	38	29	47	2	28	13	47
32	0	1	41	40	25	41	38	49	4
33	0	1	44	51	3	59	49	24	21
34	0	1	48	1	42	17	59	59	38
35	0	1	51	12	20	36	10	34	55
36	0	1	54	22	58	54	21	10	12
37	0	1	57	33	37	12	31	45	29
38	0	2	0	44	15	30	42	20	46
39	0	2	3	54	53	48	52	56	3
40	0	2	7	5	32	7	3	31	20
41	0	2	10	16	10	25	14	6	37
42	0	2	13	26	48	43	24	41	54
43	0	2	16	37	27	1	35	17	11
44	0	2	19	48	5	19	45	52	28
45	0	2	22	58	43	37	56	27	45
46	0	2	26	9	21	56	7	3	2
47	0	2	29	20	0	14	17	38	19
48	0	2	32	30	38	32	28	12	36
49	0	2	35	41	16	15	38	48	53
50	0	2	38	51	55	8	49	24	10
51	0	2	42	2	33	26	59	59	27
52	0	2	45	13	11	45	10	24	44
53	0	2	48	23	50	3	21	10	1
54	0	2	51	34	28	21	21	44	18
55	0	2	54	45	6	39	42	20	35
56	0	2	57	55	44	57	52	55	52
57	0	3	1	6	23	16	3	31	9
58	0	3	4	17	1	34	14	6	26
59	0	3	7	27	39	52	24	41	43
60	0	3	10	38	18	10	35	17	0
′	gr.	′	″	‴	iv.				
″	′	″	‴	iv.					
‴	″	‴	iv.						
iv.	‴	iv.							

RADICES Mediorum Motuum LUNÆ in Annis Julianis collectis, juxta formam vulgarem.

EPOCHÆ.	Longit. Lunæ.				Apog. Lunæ.				Nod.Bor.Lunæ			
	S.	gr.	′	″	S.	gr.	′	″	S.	gr.	′	″
Mundi 1	11	10	0	4	4	24	21	41	10	29	28	29
Chriſti 1	4	2	32	8	9	10	50	14	8	28	30	54
1601	0	7	30	1	7	19	34	30	9	11	33	3
1621	4	21	3	44	10	23	26	2	8	14	42	50
1641	9	4	37	28	1	27	17	36	7	17	52	36
1661	1	18	11	11	5	1	9	10	6	21	2	23
1681	6	1	44	54	8	5	0	43	5	24	12	10

Medii Motus LUNÆ in Annis Julianis expanſis.

	1	4	9	23	2	1	10	39	54	0	19	19	43
	2	8	18	46	5	2	21	19	49	1	8	39	26
	3	0	28	9	7	4	1	59	43	1	27	59	9
B	4	5	20	42	45	5	12	46	19	2	17	22	3
	5	10	0	5	47	6	23	26	13	3	6	41	46
	6	2	9	28	49	8	4	6	7	3	26	1	20
	7	6	18	51	52	9	14	46	2	4	15	21	12
B	8	11	11	25	29	10	25	32	37	5	4	44	5
	9	3	20	48	32	0	6	12	32	5	24	3	48
	10	8	0	11	34	1	16	52	26	6	13	23	31
	11	0	9	34	37	2	27	32	20	7	2	43	14
B	12	5	2	8	14	4	8	18	56	7	22	6	8
	13	9	11	31	16	5	18	58	50	8	11	25	51
	14	1	20	54	19	6	29	38	45	0	0	45	24
	15	6	0	17	21	8	10	18	39	9	20	5	17
B	16	10	22	50	59	9	21	5	14	10	9	28	11
	17	3	2	14	1	11	1	45	9	10	28	47	54
	18	7	11	37	3	0	12	25	4	11	18	7	37
	19	11	21	0	6	1	23	4	58	0	7	27	20
B	20	4	13	33	43	3	3	51	33	0	26	50	13
	40	8	27	7	27	6	7	43	6	1	23	40	27
	60	1	10	41	10	9	11	34	40	2	20	30	40
	80	5	24	14	54	0	15	26	13	3	17	20	54
	100	10	7	48	37	3	19	17	46	4	14	11	7
	200	8	15	37	14	7	8	35	32	8	28	22	14
	300	6	23	25	51	10	27	53	18	1	12	33	21
	400	5	1	14	28	2	17	11	4	5	25	44	28
	500	3	9	3	5	6	6	28	50	10	10	55	35
	600	1	16	51	42	9	25	46	30	2	25	6	41
	700	11	24	40	19	1	15	4	22	7	9	17	48
	800	10	2	28	56	5	4	22	8	11	23	28	55
	900	8	10	17	33	8	23	39	54	4	7	40	2
	1000	6	18	6	10	0	12	57	40	8	21	51	9
	2000	1	6	12	21	0	25	55	20	5	13	42	18
	3000	7	24	18	31	1	8	53	0	2	5	33	27
	4000	2	12	24	42	1	21	50	41	10	27	24	36
	5000	9	0	30	52	2	4	48	20	7	19	15	45
	6000	3	18	37	3	2	17	46	0	4	11	6	54

Medii Motus LUNÆ in Menſibus Anni communis.

MENSES.	Longit. Lunæ. S. gr. ′ ″	Apog. Lunæ. S. gr. ′ ″	Nod.Bor.Lunæ S. gr. ′ ″
Januarius	0 0 0 0	0 0 0 0	0 0 0 0
Februarius	1 18 28 6	0 3 27 13	0 1 38 30
Marous	1 27 24 36	0 6 34 24	0 3 7 28
Aprilis	3 15 52 32	0 10 1 37	0 4 45 57
Maius	4 21 10 2	0 13 22 10	0 6 21 17
Junius	6 9 38 8	0 16 49 23	0 7 59 46
Julius	7 14 55 39	0 20 9 56	0 9 35 5
Auguſtus	9 3 23 44	0 23 37 9	0 11 13 25
September	10 21 51 50	0 27 4 22	0 12 52 5
October	11 27 9 21	1 0 24 55	0 14 27 24
November	1 15 37 26	1 3 52 8	0 16 5 54
December	2 20 54 57	1 7 12 41	0 17 41 13

Medii Motus LUNÆ in Diebus, Horis, & Scrupulis.

Dies.	Longit. ☽ S. gr. ′ ″	Apog. gr. ′ ″	Nod. gr. ′ ″	Ho. ′	Long. ☽ gr. ′ ″	Apog. ′ ″	Nod. ′ ″	Ho. ′	Long. ☽ gr. ′ ″	Apog. ′ ″	Nod. ′ ″
1	0 13 10 35	0 6 41	0 3 11	1	0 32 56	0 17	0 8	31	17 1 10	8 38	4 6
2	0 26 21 10	0 13 22	0 6 21	2	1 5 53	0 33	0 16	32	17 34 7	8 54	4 14
3	1 9 31 45	0 20 3	0 9 32	3	1 38 49	0 50	0 24	33	18 7 3	9 11	4 22
4	1 22 42 20	0 26 44	0 12 43	4	2 11 46	1 7	0 32	34	18 39 59	9 28	4 30
5	2 5 52 55	0 33 25	0 15 53	5	2 44 42	1 24	0 40	35	19 12 55	9 45	4 38
6	2 19 3 30	0 40 6	0 19 4	6	3 17 39	1 40	0 48	36	19 45 52	10 2	4 46
7	3 2 14 5	0 46 48	0 22 14	7	3 50 35	1 57	0 56	37	20 18 48	10 19	4 54
8	3 15 24 40	0 53 29	0 25 25	8	4 23 32	2 14	1 4	38	20 51 45	10 36	5 2
9	3 28 25 15	1 0 10	0 28 36	9	4 56 28	2 30	1 12	39	21 24 41	10 52	5 10
10	4 11 45 50	1 6 51	0 31 46	10	5 29 25	2 47	1 19	40	21 57 38	11 8	5 18
11	4 24 56 25	1 13 32	0 34 57	11	6 2 21	3 4	1 27	41	22 30 34	11 25	5 26
12	5 8 7 0	1 20 13	0 38 8	12	6 35 18	3 21	1 35	42	23 3 31	11 42	5 34
13	5 21 17 35	1 26 54	0 41 18	13	7 8 14	3 37	1 43	43	23 36 27	11 59	5 42
14	6 4 28 10	1 33 35	0 44 29	14	7 41 10	3 54	1 51	44	24 9 24	12 16	5 50
15	6 17 38 45	1 40 16	0 47 40	15	8 14 7	4 11	1 59	45	24 42 20	12 32	5 58
16	7 0 49 20	1 46 57	0 50 50	16	8 47 3	4 27	2 7	46	25 15 17	12 48	6 6
17	7 13 59 55	1 53 38	0 54 1	17	9 20 0	4 44	2 15	47	25 48 13	13 5	6 14
18	7 27 10 30	2 0 19	0 57 11	18	9 52 56	5 1	2 23	48	26 21 10	13 22	6 22
19	8 10 21 5	2 7 0	1 0 22	19	10 25 53	5 18	2 31	49	26 54 6	13 39	6 30
20	8 23 31 40	2 13 41	1 3 33	20	10 58 49	5 34	2 39	50	27 27 3	13 56	6 38
21	9 6 42 15	2 20 23	1 6 43	21	11 31 46	5 51	2 47	51	27 59 59	14 13	6 46
22	9 19 52 50	2 27 4	1 9 54	22	12 4 42	6 8	2 55	52	28 32 56	14 30	6 54
23	10 3 3 25	2 33 45	1 13 5	23	12 37 39	6 24	3 3	53	29 5 52	14 46	7 1
24	10 16 14 0	2 40 26	1 16 15	24	13 10 35	6 41	3 11	54	29 38 49	15 2	7 8
25	10 29 24 36	2 47 7	1 19 26	25	13 43 32	6 58	3 19	55	30 11 45	15 19	7 16
26	11 12 35 11	2 53 48	1 22 37	26	14 16 28	7 15	3 27	56	30 44 42	15 36	7 24
27	11 25 45 46	3 0 29	1 25 47	27	14 49 25	7 31	3 34	57	31 17 38	15 53	7 32
28	0 8 56 21	3 7 10	1 28 58	28	15 22 21	7 48	3 42	58	31 50 34	16 10	7 40
29	0 22 6 56	3 13 51	1 32 9	29	15 55 17	8 5	3 50	59	32 23 31	16 26	7 48
30	1 5 17 31	3 20 32	1 35 19	20	16 28 14	8 21	3 58	60	32 56 27	16 43	7 56
31	1 18 28 6	3 27 13	1 38 30								

CANONES

PROSTHAPHÆRESIUM LUNÆ in Ellipſi,

ET

ÆQUATIONUM, EX EVECTIONE TOTIUS
Syſtematis Lunaris à propriâ ſede
exorientium.

Unà cum Tabulis

LUNÆ LATITUDINIS ET REDUCTIONIS;

Necnon

PARALLAXIUM, SEMIDIAMETRORUM,
& Horarii Motûs Solis & Lunæ.

Proſthaphereſes Lunæ in Ellipſi.

Grad.	Sig. 0. Æquatio Subtr.	Sig. 0. Logar.	Sig. 1. Æquatio Subtr.	Sig. 1. Logar.	Sig. 2. Æquatio Subtr.	Sig. 2. Logar.	Grad.
	gr. ′ ″		gr. ′ ″		gr. ′ ″		
0	0 0 0	362572	2 24 35	362349	4 13 16	361720	30
1	0 5 2	362572	2 28 59	362334	4 15 55	361694	29
2	0 10 4	3625[illegible]1	2 33 20	362319	4 18 20	361667	28
3	0 15 5	3625[illegible]	2 37 38	362303	4 20 58	361639	27
4	0 20 6	362508	2 41 54	362287	4 23 22	361612	26
5	0 25 7	302506	2 46 7	362270	4 25 42	361584	25
6	0 30 7	362564	2 50 17	362252	4 27 58	361556	24
7	0 35 6	362561	2 54 25	362235	4 30 9	361528	23
8	0 40 5	362557	2 58 29	362216	4 32 15	361499	22
9	0 45 4	302552	3 2 30	402198	4 34 15	361470	21
10	0 50 2	302546	3 6 28	362180	4 36 10	361440	20
11	0 54 59	362541	3 10 23	362161	4 38 2	361410	19
12	0 59 55	362536	3 14 16	362142	4 39 49	301380	18
13	1 4 50	362530	3 18 5	302121	4 41 31	361350	17
14	1 9 44	362523	3 21 50	362101	4 43 7	361320	16
15	1 14 [illegible]	302516	3 25 31	362080	4 44 38	361290	15
16	1 19 29	362508	3 29 8	362059	4 46 4	361259	14
17	1 24 20	362500	3 32 42	362037	4 47 25	361228	[illegible]
18	1 29 9	362491	3 36 13	362015	4 48 40	361197	12
19	1 33 56	302481	3 39 40	301992	4 49 51	361166	11
20	1 38 41	362472	3 43 3	361969	4 50 57	261135	10
21	1 43 24	362462	3 46 23	361946	4 51 58	361104	9
22	1 48 6	362452	3 49 39	361923	4 52 53	361072	8
23	1 52 47	362441	3 52 51	361808	4 53 44	361040	7
24	1 57 27	362429	3 55 59	361874	4 54 30	361008	6
25	2 2 4	362417	3 59 2	361840	4 55 9	360976	5
26	2 6 38	362404	4 2 1	361824	4 55 43	360944	4
27	2 11 11	362391	4 4 50	361799	4 56 11	360911	3
28	2 15 41	362377	4 7 46	361774	4 56 34	360878	2
29	2 20 9	362363	4 10 32	[illegible]	4 56 51	360846	1
30	2 24 35	362349	4 13 10	361720	4 57 3	360813	0
	Adde		Adde		Adde		
	Sig. 11.		Sg. 10.		Sig. 9.		

Proſthaphæreſes Lunæ in Ellipſi.

Grad.	Sig. 3. Æquatio Subtr. gr. ′ ″	Sig. 3. Logar.	Sig. 4. Æquatio Subtr. gr. ′ ″	Sig. 4. Logar.	Sig. 5. Æquatio Subtr. gr. ′ ″	Sig. 5. Logar.	Grad.
0	4 57 3	360813	4 21 26	359847	2 32 48	355098	30
1	4 57 12	360780	4 18 52	359817	2 28 13	359081	29
2	4 57 14	360748	4 16 13	359788	2 23 35	359064	28
3	4 57 11	360715	4 13 31	359758	2 18 53	359047	27
4	4 57 1	360683	4 10 45	359729	2 14 8	359031	26
5	4 56 45	360650	4 7 53	359700	2 9 20	359016	25
6	4 56 24	360617	4 4 56	359672	2 4 30	359001	24
7	4 55 58	360584	4 1 54	359643	1 59 38	358986	23
8	4 55 28	360551	3 58 48	359615	1 54 43	358972	22
9	4 54 52	360518	3 55 37	359587	1 49 46	358958	21
10	4 54 10	360485	3 52 21	359559	1 44 46	358945	20
11	4 53 23	360452	3 49 0	359532	1 39 44	358932	19
12	4 52 30	300420	3 45 35	359506	1 34 41	358920	18
13	4 51 31	360387	3 42 6	359479	1 29 36	358909	17
14	4 50 27	360354	3 38 34	359453	1 24 29	358898	16
15	4 49 19	360321	3 34 57	359427	1 19 21	358888	15
16	4 48 5	360289	3 31 15	359402	1 14 12	358879	14
17	4 46 45	360256	3 27 29	359378	1 9 0	358870	13
18	4 45 20	360224	3 23 39	359353	1 3 47	358862	12
19	4 43 50	360191	3 19 45	359329	0 58 33	358855	11
20	4 42 15	360159	3 15 45	359306	0 53 18	358848	10
21	4 40 33	360127	3 11 43	359283	0 48 1	358842	9
22	4 38 46	360095	3 7 37	359261	0 42 43	358837	8
23	4 36 54	360063	3 3 28	359239	0 37 24	358832	7
24	4 34 57	360032	2 59 15	359218	0 32 5	358828	6
25	4 32 55	360001	2 54 50	359197	0 26 45	358825	5
26	4 30 48	359970	2 50 40	359176	0 21 25	358822	4
27	4 28 35	359939	2 46 17	359156	0 16 4	358820	3
28	4 26 17	359908	2 41 50	359136	0 10 42	358818	2
29	4 23 52	359877	2 37 20	359117	0 5 21	358817	1
30	4 21 26	359847	2 32 48	359098	0 0 0	358816	0
	Adde		Adde		Adde		
	Sig. 8.		Sig. 7.		Sig. 6.		

Tabula Reflectionis & Log. Chordæ Evectionis Lunæ.

Grad.	Sig. {0 Adde, 6 Subtr.} Reflect. ′	″	Log. Chordæ Evectionis.	Sig. {1 Adde, 7 Subtr.} Reflect. ′	″	Log. Chordæ Evectionis.	Sig. {2 Adde, 8 Subtr.} Reflect. ′	″	Log. Chordæ Evectionis.	Grad.
0	0	0	000000	20	15	194201	35	4	218057	30
1	0	43	048489	20	51	195487	35	25	218484	29
2	1	26	078586	21	27	196724	35	45	218898	28
3	2	8	096184	22	3	197914	36	5	219272	27
4	2	50	108662	22	38	199060	36	24	219670	26
5	3	32	118323	23	13	200163	36	42	220031	25
6	4	14	120227	23	48	201222	37	0	220377	24
7	4	56	132893	24	22	202250	37	17	220706	23
8	5	38	128659	24	56	203238	37	33	221020	22
9	6	20	143737	25	29	204191	37	48	221319	21
10	6	55	148271	26	2	205110	38	3	221602	20
11	7	44	152363	26	34	205998	38	17	221871	19
12	8	26	156091	27	6	206855	38	30	222124	18
13	9	7	159512	27	39	207682	38	42	222363	17
14	9	48	162671	28	8	208481	28	55	222588	16
15	10	29	165604	28	38	209252	39	7	222798	15
16	11	10	168337	29	8	209997	39	18	222994	14
17	11	51	170897	29	37	210716	39	28	223176	13
18	12	31	173302	30	6	211411	39	37	223344	12
19	13	11	175568	30	34	212081	39	45	223498	11
20	13	51	177709	31	1	212729	39	53	223639	10
21	14	31	179736	31	28	213354	40	0	223765	9
22	15	10	181662	31	55	219957	40	6	223879	8
23	15	49	183491	32	21	214538	40	12	223979	7
24	16	28	185235	32	46	215099	40	17	224065	6
25	17	7	186899	33	11	215640	40	21	224138	5
26	17	45	188488	33	25	216161	40	25	224198	4
27	18	23	190009	33	58	216603	40	27	224244	3
28	19	1	191465	34	21	217146	40	28	224277	2
29	19	38	192861	34	43	217610	40	20	224297	1
30	20	15	194201	35	4	218057	40	30	224304	0
	Sig. {5 Adde, 11 Subtr.}			Sig. {4 Adde, 10 Subtr.}			Sig. {3 Adde, 9 Subtr.}			

Tabula Evectionis Lunæ Subtr.

Anomalia Synodica.	Numerus Logarithmicus.									Anomalia Synodica.
	630000	648000	650000	660000	670000	680000	690000	700000	710000	
	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	
0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 12
5	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	25
10	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 1	0 1	20
15	0 0	0 0	0 0	0 0	0 0	0 1	0 1	0 1	0 1	15
20	0 0	0 0	0 0	0 0	0 0	0 1	0 1	0 1	0 1	10
25	0 0	0 0	0 0	0 1	0 1	0 1	0 1	0 1	0 2	5
1 0	0 0	0 0	0 1	0 1	0 1	0 1	0 1	0 2	0 2	0 11
5	0 0	0 0	0 1	0 1	0 1	0 1	0 1	0 2	0 2	25
10	0 0	0 0	0 1	0 1	0 1	0 1	0 2	0 2	0 3	20
15	0 0	0 1	0 1	0 1	0 1	0 1	0 2	0 2	0 3	15
20	0 0	0 1	0 1	0 1	0 1	0 2	0 2	0 3	0 3	10
25	0 1	0 1	0 1	0 1	0 1	0 2	0 2	0 3	0 4	5
2 0	0 1	0 1	0 1	0 1	0 1	0 2	0 2	0 3	0 4	0 10
5	0 1	0 1	0 1	0 1	0 1	0 2	0 2	0 3	0 4	25
10	0 1	0 1	0 1	0 1	0 2	0 2	0 2	0 3	0 4	20
15	0 1	0 1	0 1	0 1	0 2	0 2	0 3	0 3	0 4	15
20	0 1	0 1	0 1	0 1	0 2	0 2	0 3	0 3	0 4	10
25	0 1	0 1	0 1	0 1	0 2	0 2	0 3	0 3	0 4	5
3 0	0 1	0 1	0 1	0 1	0 2	0 2	0 3	0 3	0 4	0 9
5	0 1	0 1	0 1	0 1	0 2	0 2	0 3	0 3	0 4	25
10	0 1	0 1	0 1	0 1	0 2	0 2	0 3	0 3	0 4	20
15	0 1	0 1	0 1	0 1	0 2	0 2	0 3	0 3	0 4	15
20	0 1	0 1	0 1	0 1	0 1	0 2	0 2	0 3	0 4	10
25	0 1	0 1	0 1	0 1	0 1	0 2	0 2	0 3	0 4	5
4 0	0 1	0 1	0 1	0 1	0 1	0 2	0 2	0 3	0 4	0 8
5	0 1	0 1	0 1	0 1	0 1	0 2	0 2	0 3	0 4	25
10	0 0	0 1	0 1	0 1	0 1	0 2	0 2	0 3	0 3	20
15	0 0	0 1	0 1	0 1	0 1	0 1	0 2	0 2	0 3	15
20	0 0	0 1	0 1	0 1	0 1	0 1	0 2	0 2	0 3	10
25	0 0	0 0	0 1	0 1	0 1	0 1	0 2	0 2	0 2	5
5 0	0 0	0 0	0 1	0 1	0 1	0 1	0 1	0 2	0 2	0 7
5	0 0	0 0	0 0	0 1	0 1	0 1	0 1	0 1	0 2	25
10	0 0	0 0	0 0	0 0	0 1	0 1	0 1	0 1	0 1	20
15	0 0	0 0	0 0	0 0	0 0	0 1	0 1	0 1	0 1	15
20	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 1	0 1	10
25	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	5
6 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
S. G.	Add									G. S.

Tabula Evectionis Lunæ Subtr.

Numerus Logarithmicus

Anomalia Synodica.		720000		730000		740000		750000		760000		770000		780000		790000		800000		Anomalia Synodica.	
		gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
	5	0	0	0	1	0	1	0	1	0	1	0	1	0	2	0	2	0	3	25	
	10	0	1	0	1	0	1	0	2	0	2	0	3	0	4	0	5	0	6	20	
	15	0	1	0	2	0	2	0	3	0	3	0	4	0	6	0	7	0	9	15	
	20	0	2	0	2	0	3	0	4	0	5	0	6	0	7	0	9	0	12	10	
	25	0	2	0	3	0	4	0	5	0	6	0	7	0	9	0	11	0	14	5	
1	0	0	3	0	3	0	4	0	5	0	7	0	9	0	11	0	13	0	17	0	11
	5	0	3	0	4	0	5	0	6	0	8	0	10	0	12	0	15	0	19	25	
	10	0	3	0	4	0	6	0	7	0	9	0	11	0	14	0	17	0	22	20	
	15	0	4	0	5	0	6	0	8	0	10	0	12	0	15	0	19	0	24	15	
	20	0	4	0	5	0	7	0	8	0	10	0	13	0	16	0	21	0	26	10	
	25	0	4	0	6	0	7	0	9	0	11	0	14	0	18	0	22	0	28	5	
2	0	0	5	0	6	0	7	0	9	0	12	0	15	0	19	0	24	0	30	0	10
	5	0	5	0	6	0	8	0	10	0	12	0	16	0	20	0	25	0	31	25	
	10	0	5	0	6	0	8	0	10	0	13	0	16	0	20	0	26	0	32	20	
	15	0	5	0	7	0	8	0	10	0	13	0	17	0	21	0	26	0	33	15	
	20	0	5	0	7	0	8	0	11	0	13	0	17	0	21	0	27	0	34	10	
	25	0	5	0	7	0	9	0	11	0	14	0	17	0	22	0	27	0	34	5	
3	0	0	5	0	7	0	9	0	11	0	14	0	17	0	22	0	27	0	34	0	9
	5	0	5	0	7	0	9	0	11	0	14	0	17	0	22	0	27	0	34	25	
	10	0	5	0	7	0	8	0	11	0	13	0	17	0	21	0	27	0	34	20	
	15	0	5	0	7	0	8	0	10	0	13	0	17	0	21	0	26	0	33	15	
	20	0	5	0	6	0	8	0	10	0	13	0	16	0	20	0	26	0	32	10	
	25	0	5	0	6	0	8	0	10	0	12	0	16	0	20	0	25	0	31	5	
4	0	0	5	0	6	0	7	0	9	0	12	0	15	0	19	0	24	0	30	0	8
	5	0	4	0	6	0	7	0	9	0	11	0	14	0	18	0	22	0	28	25	
	10	0	4	0	5	0	7	0	8	0	10	0	13	0	17	0	21	0	26	20	
	15	0	4	0	5	0	6	0	8	0	10	0	12	0	15	0	19	0	24	15	
	20	0	3	0	4	0	6	0	7	0	9	0	11	0	14	0	18	0	22	10	
	25	0	3	0	4	0	5	0	6	0	8	0	10	0	12	0	16	0	20	5	
5	0	0	3	0	3	0	4	0	5	0	7	0	9	0	11	0	14	0	17	0	7
	5	0	2	0	3	0	4	0	5	0	6	0	7	0	9	0	12	0	15	25	
	10	0	2	0	2	0	3	0	4	0	5	0	6	0	7	0	10	0	12	20	
	15	0	1	0	2	0	2	0	3	0	4	0	4	0	6	0	8	0	9	15	
	20	0	1	0	1	0	1	0	2	0	2	0	3	0	4	0	5	0	6	10	
	25	0	0	0	1	0	1	0	1	0	1	0	1	0	2	0	2	0	3	5	
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
S.	G.	Add.																		G.	S.

Tabula Evectionis Lunæ Subtr.

Anomalia Synodica		Numerus Logarithmicus.																				Anomalia Synodica	
		801000		802000		803000		804000		805000		806000		807000		808000		809000		810000			
S.	G.	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	G.	S.
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
	5	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0	4	0	4	25	
	10	0	6	0	6	0	6	0	6	0	7	0	7	0	7	0	7	0	7	0	9	20	
	15	0	9	0	9	0	9	0	10	0	10	0	10	0	10	0	10	0	11	0	11	15	
	20	0	12	0	12	0	12	0	13	0	13	0	13	0	14	0	14	0	14	0	15	10	
	25	0	15	0	15	0	15	0	16	0	16	0	16	0	17	0	17	0	18	0	18	5	
1	0	0	17	0	18	0	18	0	19	0	19	0	19	0	20	0	20	0	21	0	21	0	11
	5	0	20	0	20	0	21	0	21	0	22	0	22	0	23	0	23	0	24	0	24	25	
	10	0	22	0	23	0	23	0	24	0	25	0	25	0	26	0	26	0	27	0	27	20	
	15	0	25	0	25	0	26	0	27	0	27	0	28	0	28	0	29	0	30	0	30	15	
	20	0	27	0	27	0	28	0	29	0	29	0	30	0	31	0	31	0	32	0	33	10	
	25	0	28	0	29	0	30	0	31	0	31	0	32	0	33	0	34	0	34	0	35	5	
2	0	0	30	0	31	0	32	0	32	0	33	0	34	0	35	0	35	0	36	0	37	0	10
	5	0	32	0	32	0	33	0	34	0	35	0	35	0	36	0	37	0	38	0	39	25	
	10	0	33	0	34	0	34	0	35	0	36	0	37	0	38	0	39	0	40	0	41	20	
	15	0	34	0	35	0	35	0	36	0	37	0	38	0	39	0	40	0	41	0	42	15	
	20	0	35	0	35	0	36	0	37	0	38	0	39	0	40	0	41	0	42	0	43	10	
	25	0	35	0	35	0	36	0	37	0	38	0	39	0	40	0	41	0	42	0	42	5	
3	0	0	35	0	36	0	37	0	38	0	39	0	39	0	40	0	41	0	42	0	43	0	9
	5	0	35	0	36	0	37	0	37	0	39	0	39	0	40	0	41	0	42	0	43	25	
	10	0	35	0	35	0	36	0	37	0	38	0	39	0	40	0	41	0	42	0	42	20	
	15	0	34	0	35	0	36	0	36	0	37	0	38	0	39	0	40	0	41	0	42	15	
	20	0	33	0	34	0	35	0	35	0	36	0	37	0	38	0	39	0	40	0	41	10	
	25	0	32	0	33	0	34	0	34	0	35	0	36	0	37	0	28	0	28	0	39	5	
4	0	0	31	0	31	0	32	0	33	0	34	0	34	0	35	0	36	0	37	0	38	0	8
	5	0	29	0	30	0	30	0	31	0	32	0	32	0	33	0	34	0	35	0	36	25	
	10	0	27	0	28	0	28	0	29	0	30	0	30	0	31	0	32	0	33	0	33	20	
	15	0	25	0	26	0	26	0	27	0	27	0	28	0	29	0	29	0	30	0	31	15	
	20	0	23	0	23	0	24	0	25	0	25	0	25	0	26	0	27	0	27	0	28	10	
	25	0	20	0	21	0	21	0	22	0	22	0	23	0	23	0	24	0	24	0	25	5	
5	0	0	18	0	18	0	18	0	19	0	20	0	20	0	20	0	21	0	21	0	22	0	7
	5	0	15	0	15	0	15	0	16	0	16	0	17	0	17	0	18	0	18	0	19	25	
	10	0	12	0	12	0	12	0	13	0	13	0	14	0	14	0	14	0	14	0	15	20	
	15	0	9	0	9	0	9	0	10	0	10	0	10	0	11	0	11	0	11	0	11	15	
	20	0	6	0	6	0	6	0	6	0	7	0	7	0	7	0	7	0	7	0	8	10	
	25	0	4	0	3	0	3	0	3	0	3	0	3	0	4	0	4	0	4	0	4	5	
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
S.	G.	Add.																				G.	S.

Tabula Evectionis Lunæ Subtr.

Numerus Logarithmicus.

Anomalia Synodica. S. G.	811000 gr. ′	812000 gr. ′	813000 gr. ′	814000 gr. ′	815000 gr. ′	816000 gr. ′	817000 gr. ′	818000 gr. ′	819000 gr. ′	Anomalia Synodica. G. S.
0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 12
5	0 4	0 4	0 4	0 4	0 4	0 4	0 4	0 4	0 5	25
10	0 8	0 8	0 8	0 8	0 8	0 8	0 9	0 9	0 9	20
15	0 11	0 12	0 12	0 12	0 12	0 13	0 13	0 13	0 14	15
20	0 15	0 15	0 16	0 16	0 16	0 17	0 17	0 17	0 18	10
25	0 18	0 10	0 19	0 20	0 20	0 21	0 21	0 22	0 22	5
1 0	0 22	0 22	0 23	0 23	0 24	0 24	0 25	0 26	0 26	0 11
5	0 25	0 26	0 26	0 27	0 27	0 28	0 29	0 29	0 30	25
10	0 28	0 20	0 29	0 30	0 31	0 32	0 32	0 33	0 34	20
15	0 31	0 32	0 32	0 33	0 34	0 35	0 35	0 30	0 37	15
20	0 34	0 34	0 35	0 36	0 37	0 38	0 38	0 39	0 40	10
25	0 36	0 37	0 28	0 28	0 39	0 40	0 41	0 42	0 43	5
2 0	0 38	0 39	0 40	0 41	0 42	0 43	0 44	0 45	0 46	0 10
5	0 40	0 41	0 42	0 43	0 44	0 45	0 46	0 47	0 48	25
10	0 41	0 42	0 43	0 44	0 45	0 47	0 48	0 49	0 50	20
15	0 42	0 42	0 44	0 46	0 47	0 48	0 49	0 50	0 51	15
20	0 43	0 44	0 45	0 47	0 48	0 49	0 50	0 51	0 52	10
25	0 44	0 45	0 46	0 47	0 48	0 49	0 50	0 52	0 53	5
3 0	0 44	0 45	0 46	0 47	0 48	0 50	0 51	0 52	0 53	0 9
5	0 44	0 45	0 46	0 47	0 48	0 49	0 51	0 52	0 53	25
10	0 44	0 45	0 46	0 47	0 48	0 49	0 50	0 51	0 53	20
15	0 43	0 44	0 45	0 46	0 47	0 48	0 49	0 50	0 52	15
20	0 42	0 43	0 44	0 45	0 46	0 47	0 48	0 49	0 50	10
25	0 40	0 41	0 42	0 42	0 44	0 45	0 46	0 47	0 48	5
4 0	0 38	0 39	0 40	0 41	0 42	0 43	0 44	0 45	0 46	0 8
5	0 36	0 37	0 38	0 39	0 40	0 41	0 42	0 43	0 44	25
10	0 34	0 35	0 36	0 37	0 28	0 38	0 20	0 40	0 41	20
15	0 31	0 32	0 33	0 34	0 35	0 35	0 30	0 37	0 38	15
20	0 29	0 29	0 30	0 31	0 32	0 32	0 33	0 34	0 35	10
25	0 26	0 26	0 27	0 27	0 28	0 29	0 29	0 30	0 31	5
5 0	0 22	0 23	0 23	0 24	0 25	0 25	0 26	0 26	0 27	0 7
5	0 19	0 19	0 20	0 20	0 21	0 21	0 22	0 22	0 23	25
10	0 15	0 16	0 16	0 16	0 17	0 17	0 18	0 18	0 18	20
15	0 12	0 12	0 12	0 12	0 13	0 13	0 13	0 14	0 14	15
20	0 8	0 8	0 8	0 8	0 8	0 9	0 9	0 9	0 9	10
25	0 4	0 4	0 4	0 4	0 4	0 4	0 4	0 5	0 5	5
6 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 6
S. G.	Add.									G. S.

Tabula Evectionis Lunæ Subtr.

Numerus Logarithmicus.

Anomalia Synodica.	820000	821000	822000	823000	824000	825000	826000	827000	828000	Anomalia Synodica.
	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	
0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 12
5	0 5	0 5	0 5	0 5	0 5	0 5	0 5	0 5	0 6	25
10	0 9	0 9	0 10	0 10	0 10	0 10	0 11	0 11	0 11	20
15	0 14	0 14	0 14	0 15	0 15	0 15	0 16	0 16	0 17	15
20	0 18	0 19	0 19	0 20	0 20	0 20	0 21	0 21	0 22	10
25	0 23	0 23	0 24	0 24	0 25	0 25	0 26	0 26	0 27	5
1 0	0 27	0 27	0 28	0 29	0 29	0 30	0 31	0 31	0 32	0 11
5	0 31	0 31	0 32	0 33	0 34	0 35	0 35	0 36	0 37	25
10	0 35	0 35	0 36	0 37	0 38	0 39	0 40	0 41	0 41	20
15	0 38	0 39	0 40	0 41	0 42	0 43	0 44	0 45	0 46	15
20	0 41	0 42	0 43	0 44	0 45	0 46	0 47	0 49	0 50	10
25	0 44	0 45	0 46	0 47	0 48	0 49	0 51	0 52	0 53	5
2 0	0 47	0 48	0 49	0 50	0 51	0 52	0 54	0 55	0 56	0 10
5	0 49	0 50	0 51	0 53	0 54	0 55	0 56	0 58	0 59	25
10	0 51	0 52	0 53	0 55	0 56	0 57	0 58	1 0	1 1	20
15	0 52	0 53	0 55	0 56	0 58	0 59	1 0	1 2	1 3	15
20	0 53	0 54	0 56	0 57	0 59	1 0	1 1	1 3	1 4	10
25	0 54	0 55	0 57	0 58	0 59	1 1	1 2	1 4	1 5	5
3 0	0 54	0 56	0 57	0 58	1 0	1 1	1 3	1 4	1 5	0 9
5	0 54	0 55	0 57	0 58	0 59	1 1	1 2	1 4	1 5	25
10	0 54	0 55	0 55	0 58	0 59	1 0	1 2	1 3	1 5	20
15	0 53	0 54	0 55	0 57	0 58	0 59	1 1	1 2	1 4	15
20	0 51	0 53	0 54	0 55	0 56	0 58	0 59	1 0	1 2	10
25	0 49	0 51	0 52	0 53	0 54	0 56	0 57	0 58	1 0	5
4 0	0 47	0 49	0 50	0 51	0 52	0 53	0 55	0 56	0 57	0 8
5	0 45	0 45	0 47	0 48	0 49	0 50	0 52	0 53	0 54	25
10	0 42	0 43	0 44	0 45	0 46	0 47	0 48	0 50	0 51	20
15	0 39	0 40	0 41	0 42	0 43	0 44	0 45	0 45	0 47	15
20	0 35	0 36	0 37	0 38	0 39	0 40	0 41	0 42	0 43	10
25	0 32	0 32	0 33	0 24	0 35	0 36	0 36	0 37	0 38	5
5 0	0 28	0 28	0 29	0 30	0 30	0 31	0 32	0 32	0 33	0 7
5	0 23	0 24	0 24	0 25	0 26	0 26	0 27	0 27	0 28	25
10	0 10	0 19	0 20	0 20	0 21	0 21	0 22	0 22	0 23	20
15	0 14	0 15	0 15	0 15	0 16	0 16	0 16	0 17	0 17	15
20	0 10	0 10	0 10	0 10	0 11	0 11	0 11	0 11	0 12	10
25	0 5	0 5	0 5	0 5	0 5	0 5	0 6	0 6	0 6	5
6 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 6
S. gr.	Add.									gr. S.

Tabula Evectionis Lunæ Subtr:

Numerus Logarithmicus.

Anomalia Synodica.		829000		830000		831000		832000		833000		834000		835000		836000		837000		Anomalia Synodica.	
		gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
	5	0	6	0	6	0	6	0	6	0	6	0	6	0	6	0	7	0	7	25	
	10	0	11	0	12	0	12	0	12	0	12	0	13	0	13	0	13	0	14	20	
	15	0	17	0	17	0	18	0	18	0	19	0	19	0	19	0	20	0	20	15	
	20	0	22	0	23	0	24	0	24	0	25	0	25	0	26	0	26	0	27	10	
	25	0	28	0	28	0	29	0	30	0	30	0	31	0	32	0	33	0	33	5	
1	0	0	33	0	34	0	34	0	35	0	36	0	37	0	38	0	39	0	39	0	11
	5	0	38	0	39	0	39	0	40	0	41	0	42	0	43	0	44	0	45	25	
	10	0	42	0	43	0	44	0	45	0	46	0	47	0	49	0	50	0	51	20	
	15	0	47	0	48	0	49	0	50	0	51	0	52	0	54	0	55	0	56	15	
	20	0	51	0	52	0	53	0	54	0	55	0	57	0	58	0	59	1	1	10	
	25	0	54	0	55	0	57	0	58	0	59	1	1	1	2	1	4	1	5	5	
2	0	0	57	0	59	1	0	1	2	1	3	1	4	1	6	1	7	1	9	0	10
	5	1	0	1	2	1	3	1	5	1	6	1	7	1	9	1	11	1	12	25	
	10	1	2	1	4	1	5	1	7	1	8	1	10	1	12	1	13	1	15	20	
	15	1	4	1	6	1	7	1	9	1	10	1	12	1	14	1	15	1	17	15	
	20	1	6	1	7	1	9	1	10	1	12	1	14	1	15	1	17	1	19	10	
	25	1	7	1	8	1	10	1	11	1	13	1	15	1	16	1	18	1	20	5	
3	0	1	7	1	9	1	10	1	12	1	13	1	15	1	17	1	19	1	21	0	9
	5	1	7	1	8	1	10	1	12	1	13	1	15	1	17	1	19	1	20	25	
	10	1	6	1	8	1	9	1	11	1	12	1	14	1	16	1	18	1	20	20	
	15	1	5	1	7	1	8	1	10	1	11	1	13	1	15	1	16	1	18	15	
	20	1	3	1	5	1	6	1	8	1	9	1	11	1	13	1	14	1	16	10	
	25	1	1	1	3	1	4	1	6	1	7	1	9	1	10	1	12	1	14	5	
4	0	0	59	1	0	1	1	1	3	1	4	1	6	1	7	1	9	1	11	0	8
	5	0	56	0	57	0	58	1	0	1	1	1	2	1	4	1	5	1	7	25	
	10	0	52	0	53	0	54	0	56	0	57	0	58	1	0	1	1	1	3	20	
	15	0	48	0	49	0	50	0	52	0	53	0	54	0	55	0	57	0	58	15	
	20	0	44	0	45	0	46	0	47	0	48	0	49	0	50	0	52	0	52	10	
	25	0	39	0	40	0	41	0	42	0	43	0	44	0	45	0	46	0	47	5	
5	0	0	34	0	35	0	36	0	37	0	37	0	38	0	39	0	40	0	41	0	7
	5	0	29	0	29	0	30	0	31	0	32	0	32	0	33	0	34	0	35	25	
	10	0	23	0	24	0	24	0	25	0	26	0	26	0	27	0	27	0	28	20	
	15	0	18	0	18	0	18	0	19	0	19	0	20	0	20	0	21	0	21	15	
	20	0	12	0	12	0	12	0	13	0	13	0	13	0	14	0	14	0	14	10	
	25	0	6	0	6	0	6	0	6	0	6	0	7	0	7	0	7	0	7	5	
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
S.	gr.	Add.																		gr.	S.

Tabula Evectionis Lunæ Subtr.

Anomalia Synodica.		Numerus Logarithmicus. 838000		839000		840000		841000		842000		843000		844000		845000		846000		847000		Anomalia Synodica.	
		gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
	5	0	7	0	7	0	7	0	7	0	8	0	8	0	8	0	8	0	8	0	9	25	
	10	0	14	0	14	0	15	0	15	0	15	0	16	0	16	0	16	0	17	0	17	20	
	15	0	21	0	21	0	22	0	22	0	23	0	23	0	24	0	24	0	25	0	25	15	
	20	0	28	0	28	0	29	0	29	0	30	0	31	0	32	0	32	0	33	0	34	10	
	25	0	34	0	35	0	36	0	36	0	37	0	38	0	39	0	40	0	41	0	42	5	
1	0	0	40	0	41	0	42	0	43	0	44	0	45	0	46	0	47	0	48	0	49	0	11
	5	0	46	0	47	0	48	0	50	0	51	0	52	0	53	0	54	0	55	0	57	25	
	10	0	52	0	53	0	54	0	56	0	57	0	58	1	0	1	1	1	2	1	4	20	
	15	0	57	0	59	1	0	1	1	1	3	1	4	1	6	1	7	1	9	1	10	15	
	20	1	2	1	4	1	5	1	7	1	8	1	10	1	11	1	13	1	15	1	16	10	
	25	1	7	1	8	1	10	1	11	1	13	1	15	1	16	1	18	1	20	1	22	5	
2	0	1	11	1	12	1	14	1	15	1	17	1	19	1	21	1	23	1	25	1	27	0	10
	5	1	14	1	16	1	17	1	19	1	21	1	23	1	25	1	27	1	29	1	31	25	
	10	1	17	1	19	1	20	1	22	1	24	1	26	1	28	1	30	1	32	1	34	20	
	15	1	19	1	21	1	23	1	25	1	27	1	29	1	31	1	33	1	35	1	37	15	
	20	1	21	1	23	1	25	1	27	1	29	1	31	1	33	1	35	1	37	1	39	10	
	25	1	22	1	24	1	26	1	28	1	30	1	32	1	34	1	36	1	38	1	41	5	
3	0	1	22	1	24	1	26	1	28	1	30	1	32	1	35	1	37	1	39	1	41	0	9
	5	1	22	1	24	1	26	1	28	1	30	1	32	1	35	1	37	1	39	1	41	25	
	10	1	21	1	22	1	25	1	27	1	29	1	32	1	34	1	36	1	38	1	40	20	
	15	1	20	1	22	1	24	1	25	1	28	1	30	1	32	1	34	1	36	1	39	15	
	20	1	18	1	20	1	22	1	24	1	26	1	28	1	30	1	32	1	34	1	36	10	
	25	1	15	1	17	1	19	1	21	1	23	1	25	1	27	1	29	1	31	1	33	5	
4	0	1	12	1	14	1	16	1	17	1	19	1	21	1	23	1	25	1	27	1	29	0	8
	5	1	8	1	10	1	12	1	13	1	15	1	17	1	19	1	21	1	23	1	24	25	
	10	1	4	1	6	1	7	1	9	1	10	1	12	1	14	1	15	1	17	1	19	20	
	15	0	59	1	1	1	2	1	4	1	5	1	7	1	8	1	10	1	12	1	13	15	
	20	0	54	0	55	0	57	0	58	0	59	1	1	1	2	1	4	1	5	1	7	10	
	25	0	48	0	49	0	51	0	52	0	52	0	54	0	55	0	57	0	58	1	0	5	
5	0	0	42	0	43	0	44	0	45	0	46	0	47	0	48	0	50	0	51	0	52	0	7
	5	0	36	0	36	0	37	0	38	0	39	0	40	0	41	0	42	0	43	0	44	25	
	10	0	29	0	29	0	30	0	31	0	32	0	32	0	33	0	34	0	35	0	36	20	
	15	0	22	0	22	0	23	0	23	0	24	0	24	0	25	0	26	0	26	0	27	15	
	20	0	15	0	15	0	15	0	16	0	16	0	16	0	17	0	17	0	18	0	18	10	
	25	0	7	0	7	0	8	0	8	0	8	0	8	0	8	0	9	0	9	0	9	5	
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
S.	G.	Add.																				G.	S.

Tabula Evectionis Lunæ Subtr.

Anomalia Synodica. S.	G.	Numerus Logarithmicus. 848000 gr.	'	849000 gr.	'	850000 gr.	'	851000 gr.	'	852000 gr.	'	853000 gr.	'	854000 gr.	'	855000 gr.	'	856000 gr.	'	857000 gr.	'	Anomalia Synodica. G.	S.
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
	5	0	9	0	9	0	9	0	9	0	10	0	10	0	10	0	10	0	10	0	11	25	
	10	0	17	0	18	0	18	0	19	0	19	0	19	0	20	0	20	0	21	0	21	20	
	15	0	26	0	27	0	27	0	28	0	28	0	29	0	30	0	30	0	31	0	32	15	
	20	0	34	0	35	0	36	0	37	0	38	0	39	0	39	0	40	0	41	0	42	10	
	25	0	42	0	44	0	45	0	46	0	47	0	48	0	49	0	50	0	51	0	52	5	
1	0	0	51	0	52	0	53	0	54	0	55	0	57	0	58	0	59	1	0	1	2	0	11
	5	0	58	0	59	1	1	1	2	1	3	1	5	1	6	1	8	1	9	1	11	25	
	10	1	5	1	7	1	8	1	10	1	11	1	13	1	15	1	16	1	18	1	20	20	
	15	1	12	1	13	1	15	1	17	1	19	1	20	1	22	1	24	1	26	1	28	15	
	20	1	18	1	20	1	22	1	23	1	25	1	27	1	29	1	31	1	33	1	35	10	
	25	1	23	1	25	1	27	1	29	1	31	1	33	1	36	1	38	1	40	1	42	5	
2	0	1	28	1	30	1	33	1	35	1	37	1	39	1	41	1	44	1	46	1	49	0	10
	5	1	33	1	35	1	37	1	39	1	42	1	44	1	46	1	49	1	51	1	54	25	
	10	1	36	1	39	1	41	1	43	1	46	1	48	1	51	1	53	1	56	1	58	20	
	15	1	39	1	42	1	44	1	47	1	49	1	51	1	54	1	5	1	59	2	2	15	
	20	1	42	1	44	1	45	1	48	1	51	1	54	1	57	1	59	2	2	2	5	10	
	25	1	43	1	45	1	8	1	50	1	53	1	56	1	58	2	1	2	4	2	7	5	
3	0	1	44	1	46	1	49	1	51	1	54	1	56	1	59	2	2	2	5	2	8	0	9
	5	1	44	1	46	1	49	1	51	1	54	1	56	1	59	2	2	2	5	2	8	25	
	10	1	43	1	45	1	48	1	50	1	53	1	55	1	58	2	1	2	4	2	7	20	
	15	1	41	1	4	1	46	1	48	1	51	1	53	1	56	1	59	2	2	2	5	15	
	20	1	38	1	41	1	43	1	45	1	48	1	50	1	53	1	56	1	59	2	2	10	
	25	1	35	1	3[illegible]	1	40	1	42	1	45	1	47	1	50	1	52	1	55	1	58	5	
4	0	1	31	1	33	1	35	1	38	1	40	1	43	1	45	1	47	1	50	1	53	0	8
	5	1	26	1	28	1	31	1	33	1	35	1	37	1	39	1	42	1	44	1	47	25	
	10	1	21	1	23	1	25	1	27	1	29	1	31	1	33	1	36	1	38	1	40	20	
	15	1	15	1	17	1	19	1	20	1	22	1	24	1	26	1	28	1	30	1	33	15	
	20	1	8	1	10	1	12	1	13	1	15	1	17	1	19	1	20	1	22	1	24	10	
	25	1	1	1	2	1	4	1	5	1	7	1	9	1	10	1	12	1	13	1	16	5	
5	0	0	54	0	55	0	56	0	57	0	59	1	0	1	1	1	3	1	4	1	0	0	7
	5	0	45	0	46	0	47	0	48	0	50	0	51	0	52	0	53	0	54	0	56	25	
	10	0	36	0	37	0	38	0	39	0	40	0	41	0	42	0	43	0	44	0	45	20	
	15	0	27	0	28	0	29	0	30	0	30	0	31	0	32	0	33	0	33	0	34	15	
	20	0	18	0	19	0	19	0	20	0	20	0	21	0	21	0	22	0	22	0	23	10	
	25	0	9	0	9	0	10	0	10	0	10	0	11	0	11	0	11	0	11	0	11	5	
6	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S.	G.	Add																				G.	S.

Tabula Evectionis Lunæ Subtr.

Numerus Logarithmicus.

Anomalia Synodica.	858000	859000	860000	861000	862000	863000	864000	865000	866000	Anomalia Synodica.
	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	
0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 12
5	0 11	0 11	0 11	0 12	0 12	0 12	0 12	0 13	0 13	25
10	0 22	0 22	0 23	0 23	0 24	0 24	0 25	0 25	0 26	20
15	0 33	0 33	0 34	0 35	0 36	0 36	0 37	0 38	0 39	15
20	0 43	0 44	0 45	0 46	0 47	0 48	0 49	0 50	0 52	10
25	0 53	0 55	0 56	0 57	0 58	1 0	1 1	1 2	1 4	5
1 0	1 3	1 5	1 6	1 8	1 9	1 11	1 12	1 14	1 16	0 11
5	1 13	1 14	1 16	1 18	1 19	1 21	1 23	1 25	1 27	25
10	1 22	1 23	1 25	1 27	1 29	1 31	1 33	1 35	1 37	20
15	1 30	1 32	1 34	1 36	1 38	1 41	1 43	1 45	1 47	15
20	1 38	1 40	1 42	1 44	1 47	1 49	1 52	1 54	1 57	10
25	1 45	1 47	1 50	1 52	1 55	1 57	2 0	2 3	2 5	5
2 0	1 51	1 54	1 56	1 59	2 2	2 4	2 7	2 10	2 13	0 10
5	1 57	1 59	2 2	2 5	2 8	2 10	2 13	2 17	2 20	25
10	2 1	2 4	2 7	2 10	2 13	2 16	2 19	2 22	2 25	20
15	2 5	2 8	2 11	2 14	2 17	2 20	2 23	2 27	2 30	15
20	2 8	2 11	2 14	2 17	2 20	2 23	2 27	2 30	2 33	10
25	2 10	2 13	2 16	2 19	2 22	2 25	2 29	2 32	2 36	5
3 0	2 11	2 14	2 17	2 20	2 23	2 26	2 30	2 34	2 37	0 9
5	2 11	2 14	2 17	2 20	2 23	2 26	2 30	2 33	2 37	25
10	2 9	2 12	2 16	2 19	2 22	2 25	2 20	2 32	2 36	20
15	2 7	2 10	2 13	2 17	2 20	2 23	2 26	2 30	2 33	15
20	2 4	2 7	2 10	2 13	2 16	2 20	2 23	2 26	2 30	10
25	2 0	2 3	2 6	2 9	2 12	2 15	2 18	2 22	2 25	5
4 0	1 55	1 58	2 1	2 4	2 7	2 10	2 13	2 16	2 19	0 8
5	1 49	1 52	1 55	1 57	2 0	2 3	2 6	2 9	2 12	25
10	1 42	1 45	1 47	1 50	1 53	1 55	1 58	2 1	2 4	20
15	1 35	1 37	1 39	1 42	1 44	1 47	1 49	1 52	1 55	15
20	1 26	1 28	1 31	1 33	1 35	1 37	1 40	1 42	1 45	10
25	1 17	1 19	1 21	1 23	1 25	1 27	1 29	1 31	1 34	5
5 0	1 7	1 9	1 11	1 14	1 14	1 16	1 18	1 20	1 22	0 7
5	0 57	0 59	1 0	1 1	1 3	1 4	1 6	1 8	1 9	25
10	0 46	0 47	0 49	0 50	0 51	0 52	0 53	0 55	0 56	20
15	0 35	0 36	0 37	0 38	0 39	0 40	0 40	0 41	0 42	15
20	0 24	0 24	0 25	0 25	0 26	0 27	0 27	0 28	0 28	10
25	0 12	0 12	0 12	0 13	0 13	0 13	0 14	0 14	0 14	5
6 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 6
S. G.					Add.					G. S.

Tabula Æquationis ultimæ ☽ compoſita ex Evectione & Reflectione.

Diſtantia vera ☽ à ☉, à ☌ vel ☍ ad ☐.

Anomalia ☽ Æquata.	0 Sig. 6 gr. 0	0 Sig. 6 gr. 3	0 Sig. 6 gr. 6	0 Sig. 6 gr. 9	0 Sig. 6 gr. 12	0 Sig. 6 gr. 15	0 Sig. 6 gr. 18	0 Sig. 6 gr. 21	0 Sig. 6 gr. 24	0 Sig. 6 gr. 27	0 Sig. 6 gr. 30	Anomalia ☽ Æquata.
	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	
	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	
6	0 0	0 3	0 7	0 10	0 13	0 16	0 19	0 21	0 23	0 25	0 27	0 12
6	0 0	0 3	0 7	0 10	0 13	0 17	0 20	0 23	0 26	0 28	0 31	24
12	0 0	0 3	0 7	0 10	0 14	0 17	0 21	0 24	0 28	0 31	0 34	18
18	0 0	0 3	0 6	0 10	0 14	[illegible]	0 21	0 25	0 29	0 32	0 30	12
24	0 0	0 3	0 6	0 9	0 13	0 17	0 21	0 25	0 29	0 33	0 37	6
1 0	0 0	0 3	0 5	0 9	0 12	0 16	0 20	0 26	0 29	0 33	0 38	0 11
6	0 0	0 2	0 5	0 8	0 11	0 15	0 19	0 24	0 28	0 33	0 38	24
12	0 0	0 2	0 4	0 7	0 10	0 13	0 18	0 22	0 27	0 32	0 37	18
18	0 0	0 1	0 3	0 5	0 8	0 12	0 16	0 20	0 25	0 30	0 35	12
24	0 0	0 1	0 2	0 4	0 6	0 9	0 14	0 17	0 22	0 27	0 33	6
2 0	0 0	0 A. 0	0 1	0 2	0 4	0 7	0 10	0 14	0 19	0 24	0 29	0 10
6	0 0	0 1	0 A. 1	0 A 0	0 2	0 4	0 7	0 11	0 15	0 20	0 25	24
12	0 0	0 1	0 2	0 2	0 A. 1	0 1	0 3	0 7	0 11	0 15	0 21	18
18	0 0	0 2	0 3	0 4	0 4	0 A. 2	0 A. 1	0 A. 2	0 6	0 10	0 15	12
24	0 0	0 3	0 5	0 6	0 7	0 6	0 5	0 3	0 1	0 A. 3	0 10	6
3 0	0 0	0 4	0 7	0 9	0 10	0 10	0 9	0 8	0 A. 5	0 1	0 A. 3	0 9
6	0 0	0 5	0 8	0 11	0 13	0 14	0 14	0 13	0 11	0 8	0 4	24
12	0 0	0 5	0 10	0 14	0 16	0 18	0 19	0 18	[illegible]	0 15	0 11	18
18	0 0	0 6	0 12	0 16	0 20	0 22	0 24	0 24	0 24	0 22	0 19	12
24	0 0	0 7	0 13	0 19	0 23	0 26	0 29	0 3[illegible]	0 30	0 29	0 27	6
4 0	0 0	0 8	0 15	0 21	0 26	0 30	0 34	0 36	0 37	0 36	0 35	0 8
6	0 0	0 8	0 16	0 23	0 29	0 34	0 38	0 41	0 43	0 44	0 43	24
12	0 0	0 9	0 18	0 25	0 32	0 38	0 43	0 47	0 50	0 51	0 51	18
18	0 0	0 10	0 19	0 27	0 35	0 42	0 48	0 52	0 56	0 58	0 50	12
24	0 0	0 10	0 20	0 29	0 38	0 45	0 52	0 57	1 2	1 5	1 7	6
5 0	0 0	0 11	0 21	0 31	0 40	0 48	0 56	1 2	1 7	1 11	1 14	0 7
6	0 0	0 11	0 22	0 33	0 42	0 51	0 59	1 6	1 12	1 17	1 21	24
12	0 0	0 12	0 23	0 34	0 44	0 54	1 1	1 10	1 17	1 23	1 27	18
18	0 0	0 12	0 24	0 35	0 46	0 56	1 5	1 14	1 21	1 28	1 33	12
24	0 0	0 12	0 24	0 36	0 47	0 57	1 7	1 17	1 25	1 3[illegible]	1 38	6
6 0	0 0	0 12	0 24	0 30	0 48	0 59	1 0	1 19	1 28	1 30	1 32	0 6
	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	
A ☐ ad ☌ vel ☍.	5 Si. 11 gr. 30	5 Si. 11 gr. 27	5 Si. 11 gr. 24	5 Si. 11 gr. 21	5 Si. 11 gr. 18	5 Si. 11 gr. 15	5 Si. 11 gr. 12	5 Si. 11 gr. 9	5 Si. 11 gr. 6	5 Si. 11 gr. 3	5 Si. 11 gr. 0	A ☐ ad ☌ vel ☍.

Diſtantia vera ☽ à ☉, à ☐ ad ☌ vel ☍.

Tabula Æquationis ultimæ ☽ compoſita ex Evectione & Variatione Tychonicâ.

Diſtantia vera ☽ à ☉, à ☌ vel ☍ ad □.

Anomalia Lunæ Æquata.	0 Sig. 6 gr. 0	0 Sig. 6 gr. 3	0 Sig. 6 gr. 6	0 Sig. 6 gr. 9	0 Sig. 6 gr. 12	0 Sig. 6 gr. 15	0 Sig. 6 gr. 18	0 Sig. 6 gr. 21	0 Sig. 6 gr. 24	0 Sig. 6 gr. 27	0 Sig. 6 gr. 30	Anomalia Lunæ Æquata.
	Add.	Add.	Add.	Add.	Add.	Add.	Add.	Add.	Add.	Add.	Add.	
	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	
6 0	0 0	0 12	0 24	0 36	0 48	0 59	1 9	1 19	1 28	1 36	1 42	0 6
6	0 0	0 12	0 24	0 35	0 48	1 0	1 10	1 20	1 30	1 38	1 46	24
12	0 0	0 12	0 24	0 36	0 48	1 0	1 11	1 22	1 32	1 40	1 49	18
18	0 0	0 12	0 24	0 36	0 48	1 0	1 11	1 22	1 32	1 42	1 51	12
24	0 0	0 12	0 24	0 36	0 48	0 59	1 11	1 22	1 33	1 42	1 52	6
7 0	0 0	0 11	0 23	0 35	0 47	0 58	1 10	1 21	1 32	1 42	1 52	0 5
6	0 0	0 11	0 22	0 34	0 45	0 57	1 9	1 20	1 31	1 41	1 51	24
12	0 0	0 10	0 21	0 32	0 44	0 55	1 7	1 18	1 29	1 39	1 49	18
18	0 0	0 10	0 20	0 31	0 42	0 53	1 4	1 15	1 26	1 37	1 47	12
24	0 0	0 9	0 19	0 29	0 40	0 50	1 1	1 12	1 23	1 34	1 44	6
8 0	0 0	0 8	0 18	0 27	0 37	0 48	0 58	1 9	1 19	1 30	1 40	0 4
6	0 0	0 8	0 16	0 25	0 35	0 44	0 55	1 5	1 15	1 25	1 35	24
12	0 0	0 7	0 15	0 23	0 32	0 41	0 51	1 1	1 11	1 20	1 30	18
18	0 0	0 6	0 13	0 21	0 29	0 38	0 47	0 56	1 6	1 14	1 24	12
24	0 0	0 5	0 12	0 18	0 26	0 34	0 42	0 51	1 0	1 9	1 18	6
9 0	0 0	0 4	0 10	0 10	0 23	0 30	0 38	0 45	0 54	1 3	1 11	0 3
6	0 0	0 4	0 8	0 14	0 20	0 26	0 33	0 41	0 48	0 57	1 5	24
12	0 0	0 2	0 7	0 11	0 16	0 22	0 29	0 35	0 42	0 50	0 58	18
18	0 0	0 2	0 5	0 9	0 13	0 18	0 24	0 30	0 36	0 43	0 50	12
24	0 0	0 1	0 4	0 6	0 10	0 14	0 19	0 24	0 30	0 36	0 43	6
10 0	0 0	0 1	0 2	0 4	0 7	0 10	0 14	0 19	0 24	0 20	0 35	0 2
6	0 0	0 0	0 1	0 2	0 4	0 7	0 10	0 14	0 18	0 23	0 28	24
12	0 0	0 S 0	0 S 0	0 S 0	0 S 1	0 3	0 6	0 9	0 12	0 16	0 20	18
18	0 0	0 1	0 2	0 2	0 1	0 S 0	0 1	0 4	0 6	0 9	0 13	12
24	0 0	0 2	0 3	0 3	0 4	0 3	0 S 2	0 S 1	0 S 1	0 S 3	0 S 6	6
11 0	0 0	0 2	0 4	0 5	0 6	0 6	0 6	0 5	0 4	0 3	0 1	0 1
6	0 0	0 2	0 5	0 6	0 8	0 9	0 9	0 9	0 0	0 [illegible]	0 [illegible]	24
12	0 0	0 3	0 5	0 8	0 9	0 11	0 12	0 13	0 13	0 13	0 13	18
18	0 0	0 3	0 6	0 9	0 11	0 13	0 15	0 16	0 17	0 18	0 18	12
24	0 0	0 3	0 6	0 9	0 12	0 15	0 17	0 19	0 21	0 22	0 22	6
12 0	0 0	0 3	0 7	0 10	0 12	0 16	0 20	0 21	0 23	0 25	0 20	0 0
	Add.	Add.	Add.	Add.	Add.	Add.	Add.	Add.	Add.	Add.	Add.	
A ☌ vel ☍ ad □	5 Si. 11 gr. 30	5 Si. 11 gr. 27	5 Si. 11 gr. 24	5 Si. 11 gr. 21	5 Si. 11 gr. 18	5 Si. 11 gr. 15	5 Si. 11 gr. 12	5 Si. 11 gr. 9	5 Si. 11 gr. 6	5 Si. 11 gr. 3.	5 Si. 11 gr. 0	A □ ad ☌ vel ☍.

Diſtantia vera ☽ à ☉, à □ ad ☌ vel ☍.

Tabula Æquationis ultimæ ☽ compoſita ex Evectione & Reflectione.

Diſtantia vera ☽ à ⊙, à ☌ vel ☍ ad ☐.

Anomalia Lunæ Æquata.	1 Sig. 7 gr. 0	1 Sig. 7 gr. 3	1 Sig. 7 gr. 6	1 Sig. 7 gr. 9	1 Sig. 7 gr. 12	1 Sig. 7 gr. 15	1 Sig. 7 gr. 18	1 Sig. 7 gr. 21	1 Sig. 7 gr. 24	1 Sig. 7 gr. 27	1 Sig. 7 gr. 30	Anomalia Lunæ Æquata.
	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	
	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	
0 0	0 27	0 29	0 30	0 30	0 31	0 31	0 30	0 30	0 29	0 27	0 26	0 11
6	0 31	0 33	0 35	0 36	0 37	0 38	0 38	0 38	0 38	0 37	0 37	24
12	0 34	0 36	0 39	0 41	0 43	0 44	0 46	0 46	0 47	0 47	0 47	18
18	0 36	0 39	0 42	0 45	0 48	0 50	0 52	0 54	0 55	0 56	0 56	12
24	0 37	0 41	0 45	0 48	0 52	0 55	0 57	1 0	1 2	1 4	1 5	6
1 0	0 38	0 42	0 47	0 50	0 55	0 58	1 2	1 5	1 8	1 10	1 12	0 11
6	0 38	0 42	0 47	0 52	0 57	1 1	1 5	1 9	1 13	1 10	1 19	24
12	0 37	0 42	0 47	0 52	0 58	1 3	1 7	1 12	1 16	1 20	1 24	18
18	0 35	0 40	0 46	0 52	0 57	1 3	1 9	1 14	1 19	1 24	1 28	12
24	0 33	0 38	0 44	0 50	0 56	1 3	1 9	1 14	1 20	1 26	1 31	6
2 0	0 29	0 35	0 41	0 48	0 54	1 1	1 7	1 14	1 20	1 26	1 32	0 10
6	0 25	0 31	0 38	0 44	0 51	0 58	1 5	1 12	1 19	1 26	1 32	24
12	0 21	0 27	0 33	0 40	0 47	0 54	1 0	1 9	1 17	1 24	1 31	18
18	0 15	0 21	0 27	0 34	0 41	0 49	0 57	1 5	1 13	1 21	1 29	12
24	0 10	0 15	0 21	0 28	0 35	0 42	0 51	0 59	1 7	1 16	1 24	6
3 0	0 A. 3	0 8	0 14	0 21	0 28	0 36	0 44	0 52	1 1	1 10	1 19	0 9
6	0 4	0 A. 1	0 1	0 13	0 20	0 28	0 36	0 44	0 54	1 3	1 12	24
12	0 11	0 7	0 A. 2	0 4	0 11	0 19	0 27	0 36	0 45	0 55	1 4	18
18	0 19	0 15	0 10	0 A. 1	0 A. 2	0 A. 9	0 17	0 26	0 35	0 46	0 55	12
24	0 27	0 24	0 20	0 14	0 8	0 1	0 A. 7	0 15	0 25	0 34	0 44	6
4 0	0 35	0 33	0 29	0 24	0 19	0 12	0 4	0 4	0 13	0 23	0 33	0 8
6	0 43	0 41	0 38	0 34	0 29	0 23	0 16	0 A. 8	0 1	0 A. 11	0 20	24
12	0 51	0 50	0 48	0 45	0 40	0 35	0 28	0 21	0 A. 12	0 3	0 A. 7	18
18	0 59	0 59	0 58	0 55	0 51	0 46	0 40	0 33	0 25	0 16	0 7	12
24	1 7	1 8	1 7	1 5	1 2	0 58	0 53	0 46	0 38	0 30	0 21	6
5 0	1 14	1 16	1 16	1 15	1 13	1 9	1 5	0 59	0 52	0 44	0 35	0 7
6	1 21	1 24	1 24	1 25	1 23	1 21	1 17	1 12	1 5	0 58	0 50	24
12	1 27	1 31	1 32	1 34	1 33	1 31	1 28	1 24	1 18	1 14	1 4	18
18	1 33	1 37	1 39	1 42	1 42	1 41	1 39	1 36	1 31	1 25	1 18	12
24	1 38	1 43	1 45	1 49	1 50	1 51	1 49	1 4[illegible]	1 42	1 37	1 31	6
6 0	1 42	1 48	1 51	1 56	1 58	1 59	1 59	1 5[illegible]	1 54	1 50	1 44	0 6
	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	
[illegible]	4 Si. 10 gr. 30	4 Si. 10 gr. 27	4 Si. 10 gr. 24	4 Si. 10 gr. 21	4 Si. 10 gr. 18	4 Si. 10 gr. 15	4 Si. 10 gr. 12	4 Si. 10 gr. 9	4 Si. 10 gr. 6	4 Si. 10 gr. 3	4 Si. 10 gr. 0	[illegible]

Diſtantia vera ☽ à ⊙, à ☐ ad ☌ vel ☍.

Tabula Æquationis ultimæ ☽ compoſita ex Evectione & Reflectione.

Diſtantia vera ☽ à ☉, à ☌ vel ☍ ad □.

Anomalia Lunæ Æquata.	1 Sig. 7 gr. 0	1 Sig. 7 gr. 3	1 Sig. 7 gr. 6	1 Sig. 7 gr. 9	1 Sig. 7 gr. 12	1 Sig. 7 gr. 15	1 Sig. 7 gr. 18	1 Sig. 7 gr. 21	1 Sig. 7 gr. 24	1 Sig. 7 gr. 27	1 Sig. 7 gr. 30	Anomalia Lunæ Æquata.
	Add.	Add.	Add.	Add.	Add.	Add.	Add.	Add.	Add.	Add.	Add.	
	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	
6 0	1 42	1 48	1 53	1 56	1 58	1 59	1 59	1 57	1 54	1 50	1 44	0 6
6	1 46	1 53	1 58	2 2	2 5	2 7	2 7	2 6	2 4	2 1	1 56	24
12	1 49	1 56	2 2	2 7	2 11	2 13	2 15	2 14	2 13	2 11	2 7	18
18	1 51	1 58	2 5	2 11	2 15	2 19	2 21	2 22	2 21	2 20	2 17	12
24	1 52	2 0	2 7	2 14	2 19	2 23	2 26	2 28	2 28	2 27	2 25	6
7 0	1 52	2 0	2 8	2 15	2 21	2 26	2 30	2 32	2 34	2 33	2 32	0 5
6	1 51	2 0	2 8	2 16	2 22	2 28	2 32	2 35	2 38	2 38	2 38	24
12	1 49	1 59	2 7	2 15	2 22	2 28	2 33	2 37	2 40	2 42	2 42	18
18	1 47	1 57	2 6	2 14	2 21	2 28	2 33	2 38	2 41	2 44	2 45	12
24	1 44	1 54	2 3	2 11	2 19	2 26	2 32	2 37	2 41	2 44	2 46	6
8 0	1 40	1 50	1 59	2 8	2 16	2 23	2 30	2 35	2 40	2 44	2 46	0 4
6	1 35	1 45	1 54	2 3	2 12	2 19	2 26	2 32	2 37	2 42	2 45	24
12	1 30	1 40	1 49	1 58	2 0	2 14	2 21	2 28	2 33	2 38	2 42	18
18	1 24	1 34	1 43	1 52	2 0	2 8	2 15	2 22	2 28	2 33	2 37	12
24	1 18	1 27	1 36	1 45	1 53	2 1	2 9	2 16	2 22	2 27	2 32	6
9 0	1 12	1 20	1 29	1 38	1 45	1 54	2 1	2 8	2 14	2 20	2 25	0 3
6	1 5	1 13	1 21	1 29	1 37	1 45	1 53	2 0	2 6	2 12	2 17	24
12	0 58	1 5	1 13	1 21	1 29	1 36	1 43	1 51	1 57	2 3	2 8	18
18	0 50	0 57	1 5	1 12	1 20	1 27	1 34	1 41	1 47	1 53	1 58	12
24	0 43	0 49	0 56	1 3	1 10	1 17	1 24	1 30	1 36	1 42	1 48	6
10 0	0 35	0 41	0 47	0 54	1 0	1 7	1 13	1 19	1 25	1 31	1 37	0 2
6	0 28	0 33	0 38	0 44	0 50	0 55	1 2	1 8	1 14	1 20	1 25	24
12	0 20	0 25	0 30	0 35	0 40	0 46	0 51	0 57	1 2	1 8	1 13	18
18	0 13	0 17	0 21	0 26	0 30	0 35	0 40	0 45	0 50	0 56	1 0	12
24	0 S 6	0 9	0 13	0 16	0 21	0 25	0 29	0 34	0 38	0 43	0 48	6
11 0	0 1	0 S 2	0 S 4	0 S 8	0 11	0 15	0 18	0 22	0 27	0 31	0 35	0 1
6	0 7	0 5	0 3	0 1	0 S 2	0 S 5	0 S 8	0 11	0 15	0 19	0 2	24
12	0 13	0 12	0 11	0 9	0 8	0 5	0 2	0 S 0	0 S 3	0 S 7	0 S 10	18
18	0 18	0 18	0 18	0 17	0 16	0 14	0 12	0 10	0 8	0 5	0 3	12
24	0 23	0 24	0 24	0 24	0 23	0 23	0 22	0 20	0 19	0 17	0 14	6
12 0	0 26	0 29	0 30	0 30	0 31	0 31	0 30	0 30	0 28	0 27	0 26	0 0
A □ ad ☌ vel ☍	Add.	Add.	Add.	Add.	Add.	Add.	Add.	Add.	Add.	Add.	Add.	A □ ad ☌ vel ☍.
	4 Si. 10 gr. 30	4 Si. 10 gr. 27	4 Si. 10 gr. 24	4 Si. 10 gr. 21	4 Si. 10 gr. 18	4 Si. 10 gr. 15	4 Si. 10 gr. 12	4 Si. 10 gr. 9	4 Si. 10 gr. 6	4 Si. 10 gr. 3	4 Si. 10 gr. 0	

Diſtantia vera ☽ à ☉, à □ ad ☌ vel ☍.

Tabula Æquationis ultimæ ☽ compoſita ex Evectione & Reflectione.

Diſtantia vera ☽ à ☉, à ☌ vel ☍ ad □.

Anomalia Lunæ Æquata.	2Sig.8 gr. 0	2Sig.8 gr. 3	2Sig.8 gr. 6	2Sig.8 gr. 9	2Sig.8 gr. 12	2Sig.8 gr. 15	2Sig.8 gr. 18	2Sig.8 gr. 21	2Sig.8 gr. 24	2Sig.8 gr. 27	2Sig.8 gr. 30	Anomalia Lunæ Æquata.
	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	
	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	
0 0	0 26	0 24	0 22	0 20	0 17	0 15	0 12	0 9	0 6	0 3	0 0	0 12
6	0 37	0 36	0 34	0 32	0 30	0 28	0 26	0 23	0 20	0 18	0 15	24
12	0 47	0 46	0 46	0 44	0 43	0 41	0 39	0 37	0 34	0 32	0 29	18
18	0 56	0 56	0 56	0 56	0 55	0 54	0 52	0 50	0 48	0 46	0 43	12
24	1 5	1 6	1 6	1 6	1 6	1 5	1 4	1 3	1 1	0 59	0 57	6
1 0	1 12	1 14	1 15	1 16	1 17	1 16	1 16	1 15	1 14	1 12	1 10	0 11
6	1 19	1 21	1 23	1 24	1 26	1 27	1 27	1 20	1 26	1 25	1 23	24
12	1 24	1 27	1 30	1 32	1 34	1 36	1 36	1 37	1 37	1 36	1 35	18
18	1 28	1 32	1 36	1 38	1 41	1 43	1 45	1 46	1 47	1 46	1 46	12
24	1 31	1 36	1 40	1 44	1 47	1 50	1 53	1 54	1 55	1 56	1 56	6
2 0	1 32	1 38	1 43	1 48	1 52	1 56	1 59	2 1	2 3	2 4	2 5	0 10
6	1 32	1 39	1 45	1 50	1 55	2 0	2 3	2 7	2 9	2 11	2 12	24
12	1 31	1 38	1 45	1 51	1 57	2 2	2 7	2 11	2 14	2 17	2 19	18
18	1 29	1 36	1 43	1 51	1 57	2 3	2 9	2 13	2 18	2 21	2 24	12
24	1 24	1 33	1 41	1 49	1 56	2 3	2 9	2 15	2 20	2 24	2 27	6
3 0	1 19	1 28	1 36	1 45	1 53	2 0	2 8	2 14	2 20	2 25	2 29	0 9
6	1 12	1 21	1 31	1 40	1 48	1 57	2 5	2 12	2 18	2 24	2 30	24
12	1 4	1 14	1 24	1 33	1 42	1 51	2 0	2 0	2 15	2 22	2 28	18
18	0 55	1 5	1 15	1 25	1 35	1 45	1 54	2 3	2 11	2 18	2 25	12
24	0 44	0 55	1 5	1 16	1 26	1 36	1 45	1 56	2 5	2 13	2 20	6
4 0	0 33	0 43	0 54	1 6	1 16	1 26	1 37	1 47	1 57	2 6	2 14	0 8
6	0 20	0 31	0 42	0 54	1 4	1 15	1 26	1 37	1 47	1 57	2 6	24
12	0 A. 7	0 18	0 29	0 40	0 51	1 2	1 14	1 25	1 36	1 47	1 57	18
18	0 7	0 4	0 15	0 26	0 37	0 49	1 1	1 13	1 24	1 35	1 46	12
24	0 21	0 A. 11	0 A. 0	0 A. 11	0 23	0 35	0 47	0 59	1 11	1 22	1 33	6
5 0	0 35	0 25	0 15	0 4	0 A. 8	0 20	0 32	0 44	0 56	1 8	1 20	0 7
6	0 50	0 40	0 30	0 19	0 8	0 4	0 16	0 28	0 41	0 53	1 5	24
12	1 4	0 55	0 45	0 35	0 24	0 A. 12	0 A. 0	0 12	0 25	0 37	0 50	18
18	1 18	1 10	1 1	0 51	0 40	0 28	0 16	0 A. 4	0 A. 8	0 21	0 33	12
24	1 31	1 24	1 15	1 6	0 56	0 45	0 33	0 21	0 8	0 A. 4	0 17	6
6 0	1 44	1 37	1 20	1 21	1 11	1 0	0 49	0 37	0 25	0 13	0 A. 0	0 6
	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Subtr.	Adde.	
A □ ad ☌ vel ☍	3Sig.9 gr. 30	3Sig.9 gr. 27	3Sig.9 gr. 24	3Sig.9 gr. 21	3Sig.9 gr. 18	3Sig.9 gr. 15	3Sig.9 gr. 12	3Sig.9 gr. 9	3Sig.9 gr. 6	3Sig.9 gr. 3	3Sig.9 gr. 0	A □ ad ☌ vel ☍

Diſtantia vera ☽ à ☉, à □ ad ☌ vel ☍.

Tabula Æquationis ultimæ ☽ compoſita ex Evectione & Reflectione.

Diſtantia vera ☽ à ☉, à ☌ vel ☍ ad □.

Anomalia Æquata.	2Sig.8 gr. 0	2Sig.8 gr. 3	2Sig.8 gr. 6	2Sig.8 gr. 9	2Sig.8 gr. 12	2Sig.8 gr. 15	2Sig.8 gr. 18	2Sig.8 gr. 21	2Sig.8 gr. 24	2 Sig 8 gr. 27	2Sig.8 gr. 30	Anomalia Æquata.
	Add.	Add.	Add.	Add.	Add.	Add.	Add.	Add.	Add.	Add.	Add.	
	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	
6 0	1 44	1 37	1 29	1 21	1 11	1 0	0 49	0 37	0 25	0 13	0 0	0 6
6	1 56	1 50	1 43	1 35	1 26	1 16	1 5	0 54	0 42	0 29	0 17	24
22	2 7	2 2	1 56	1 48	1 40	1 30	1 20	1 9	0 58	0 46	0 33	18
18	2 17	2 12	2 7	2 0	1 53	1 44	1 35	1 24	1 13	1 2	0 50	12
24	2 25	2 22	2 17	2 11	2 5	1 57	1 48	1 38	1 28	1 17	1 5	6
7 0	2 32	2 30	2 26	2 21	2 15	2 8	2 0	1 51	1 41	1 31	1 20	0 5
6	2 38	2 30	2 34	2 30	2 24	2 18	2 11	2 3	1 54	1 44	1 33	24
12	2 42	2 42	2 40	2 36	2 32	2 27	2 20	2 13	2 5	1 56	1 46	18
18	2 45	2 45	2 44	2 42	2 38	2 34	2 28	2 22	2 14	2 6	1 57	12
24	2 46	2 47	2 47	2 45	2 43	2 39	2 35	2 29	2 22	2 15	2 6	6
8 0	2 46	2 48	2 48	2 47	2 46	2 43	2 39	2 34	2 29	2 22	2 14	0 4
6	2 45	2 47	2 48	2 48	2 47	2 45	2 42	2 38	2 33	2 27	2 20	24
12	2 42	2 44	2 46	2 47	2 47	2 46	2 44	2 40	2 37	2 31	2 25	18
18	2 37	2 41	2 43	2 45	2 45	2 45	2 43	2 41	2 38	2 33	2 28	12
24	2 32	2 36	2 39	2 41	2 42	2 42	2 41	2 40	2 37	2 34	2 30	6
9 0	2 25	2 29	2 33	2 35	2 37	2 38	2 38	2 37	2 35	2 33	2 29	0 3
6	2 17	2 22	2 25	2 29	2 31	2 32	2 33	2 33	2 32	2 30	2 27	24
12	2 8	2 13	2 17	2 21	2 24	2 26	2 27	2 27	2 27	2 26	2 21	18
18	1 58	2 3	2 8	2 12	2 15	2 17	2 19	2 20	2 21	2 20	2 19	12
24	1 48	1 53	1 58	2 2	2 5	2 8	2 11	2 12	2 13	2 13	2 12	6
10 0	1 37	1 42	1 47	1 51	1 55	1 58	2 1	2 3	2 4	2 5	2 5	0 2
6	1 25	1 30	1 35	1 39	1 43	1 47	1 50	1 52	1 54	1 55	1 56	24
12	1 13	1 18	1 23	1 27	1 31	1 35	1 38	1 41	1 43	1 45	1 46	18
18	1 0	1 5	1 10	1 14	1 18	1 22	1 25	1 28	1 31	1 33	1 35	12
24	0 48	0 52	0 57	1 1	1 5	1 9	1 12	1 16	1 18	1 21	1 23	6
11 0	0 35	0 39	0 44	0 48	0 52	0 55	0 59	1 2	1 5	1 8	1 10	0 1
6	0 22	0 26	0 30	0 34	0 38	0 41	0 45	0 48	0 51	0 44	0 57	24
12	0 S 10	0 13	0 17	0 20	0 24	0 27	0 31	0 34	0 37	0 40	0 43	18
18	0 3	0 S 0	0 S 4	0 S 7	0 S 10	0 S 13	0 16	0 20	0 23	0 26	0 29	12
24	0 14	0 12	0 10	0 7	0 4	0 1	0 2	0 5	0 8	0 S 12	0 15	6
12 0	0 26	0 23	0 22	0 20	0 17	0 15	0 S 12	0 S 9	0 S 0	0 3	0 0	0 0
A ☌ vel ☍ ad □.	Add.	Add.	Add.	Add.	Add.	Add.	Add.	Add.	Add.	Add.	Add.	A □ ad ☌ vel ☍.
	3Sig.9 gr. 30	3Sig.9 gr. 27	3Sig.9 gr. 24	3Sig.9 gr. 21	3Sig.9 gr. 18	3Sig.9 gr. 15	3Sig.9 gr. 12	3Sig.9 gr. 9	3Sig 9 gr. 6	3Sig.9 gr. 3	3Sig.9 gr. 0	

Diſtantia vera ☽ à ☉, à □ ad ☌ vel ☍.

Tabula Scrupulorum Proport.

Diſtantia ☽ à ☉.	Sig. 0. 6. ′ ″		Sig. 1. 7. ′ ″		Sig. 2. 8. ′ ″		Diſtantia ☽ à ☉.
0	0	0	15	17	45	18	30
1	0	1	16	13	46	11	29
2	0	4	17	11	47	3	28
3	0	9	18	9	47	52	27
4	0	16	19	7	48	41	26
5	0	26	20	6	49	29	25
6	0	39	21	5	50	17	24
7	0	54	22	5	51	2	23
8	1	11	23	6	51	45	22
9	1	31	24	7	52	20	21
10	1	52	25	9	53	6	20
11	2	14	26	12	53	44	19
12	2	39	27	15	54	12	18
13	3	0	28	18	54	57	17
14	3	35	29	21	55	31	16
15	4	[illegible]	30	24	56	4	15
16	4	45	31	26	56	34	14
17	5	15	32	29	57	1	13
18	5	51	33	31	57	26	12
19	6	25	34	33	57	51	11
20	7	5	35	35	58	13	10
21	7	51	36	37	58	34	9
22	8	34	37	39	58	52	8
23	9	20	38	40	59	7	7
24	10	9	39	40	59	20	6
25	10	58	40	38	59	32	5
26	11	47	41	35	59	42	4
27	12	37	42	32	59	50	3
28	13	28	43	28	59	55	2
29	14	22	44	23	59	58	1
30	15	17	45	18	60	0	0
Gr.	Sig. 11. 1.		Sig. 10. 2.		Sig. 9. 3.		Gr.

Tabula Æquationis Nodorum.

Diſtantia ☽ à ☉.	Si. 0 6 } ſub. gr.	′	″	Si. 1 7 } ſub. gr.	′	″	Si. 2 8 } ſub. gr.	′	″	Diſtantia ☽ à ☉.
0	0	0	0	1	23	10	1	20	54	30
1	0	3	24	1	24	44	1	19	10	29
2	0	6	48	1	26	10	1	17	20	28
3	0	10	11	1	27	30	1	15	25	27
4	0	13	34	1	28	44	1	13	24	26
5	0	16	55	1	29	51	1	11	18	25
6	0	20	14	1	30	50	1	9	7	24
7	0	23	33	1	31	45	1	6	51	23
8	0	26	49	1	32	30	1	4	31	22
9	0	30	3	1	33	10	1	2	6	21
10	0	33	16	1	33	44	0	59	38	20
11	0	36	25	1	34	10	0	57	5	19
12	0	39	32	1	34	28	0	54	28	18
13	0	42	35	1	34	40	0	51	48	17
14	0	45	35	1	34	45	0	49	4	16
15	0	48	32	1	34	42	0	46	16	15
16	0	51	24	1	34	35	0	43	25	14
17	0	54	12	1	34	16	0	40	31	13
18	0	56	57	1	33	54	0	37	35	12
19	0	59	37	1	33	26	0	34	36	11
20	1	2	13	1	32	50	0	31	35	10
21	1	4	43	1	32	6	0	28	32	9
22	1	7	7	1	31	19	0	25	26	8
23	1	9	27	1	30	22	0	22	19	7
24	1	11	42	1	29	19	0	19	11	6
25	1	13	53	1	28	11	0	16	1	5
26	1	15	57	1	26	54	0	12	50	4
27	1	17	54	1	25	33	0	9	38	3
28	1	19	46	1	24	8	0	6	26	2
29	1	21	31	1	22	34	0	3	13	1
30	1	23	10	1	20	54	0	0	0	0
Gr.	Si. 11 5 } Ad.			Si. 10 4 } Ad.			Si. 9 3 } Ad.			Gr.

Tabula Latitudinis LUNÆ.

Gradus.	Sept. / Merid. { Sig. 0. / Sig. 6.					Sig. 1. / Sig. 7.					Sig. 2. / Sig. 8. } Aſcend.					Aſcend.
	Latitudo			Exceſ.		Latitudo			Exceſ.		Latitudo			Exceſ.		
	gr.	′	″	′	″	gr.	′	″	′	″	gr.	′	″	′	″	
0	0	0	0	0	0	2	29	52	8	30	4	19	43	14	43	30
1	0	5	14	0	18	2	34	22	8	45	4	22	18	14	52	29
2	0	10	27	0	36	2	38	52	9	0	4	24	49	15	0	28
3	0	15	41	0	54	2	43	15	9	15	4	27	14	15	8	27
4	0	20	54	1	12	2	47	37	9	30	4	29	34	15	16	26
5	0	26	7	1	29	2	51	56	9	45	4	31	50	15	24	25
6	0	31	19	1	47	2	56	11	10	0	4	34	0	15	31	24
7	0	36	31	2	5	3	0	24	10	14	4	35	6	15	38	23
8	0	41	42	2	22	3	4	33	10	28	4	38	6	15	45	22
9	0	46	52	2	40	3	8	39	10	42	4	40	2	15	52	21
10	0	52	2	2	57	3	12	42	10	56	4	41	52	15	58	20
11	0	57	10	3	15	3	16	41	11	9	4	43	37	16	4	19
12	1	2	18	3	32	3	20	36	11	22	4	45	17	16	10	18
13	1	7	24	3	49	3	24	28	11	35	4	45	52	16	15	17
14	1	12	20	4	7	3	28	16	11	48	4	48	21	16	20	16
15	1	17	33	4	24	3	32	0	12	1	4	49	45	16	25	15
16	1	22	36	4	41	3	35	40	12	13	4	51	4	16	29	14
17	1	27	37	4	58	3	39	17	12	25	4	52	17	16	33	13
18	1	32	36	5	15	3	42	49	12	37	4	53	26	16	37	12
19	1	37	34	5	32	3	46	17	12	49	4	54	29	16	41	11
20	1	42	30	5	49	3	49	42	13	1	4	55	26	16	44	10
21	1	47	24	6	5	3	53	2	13	12	4	56	18	16	47	9
22	1	52	16	6	22	3	56	17	13	23	4	57	4	16	50	8
23	1	57	6	6	38	3	59	29	13	34	4	57	45	16	52	7
24	2	1	54	6	55	4	2	36	13	45	4	58	21	16	54	6
25	2	6	39	7	11	4	5	38	13	55	4	58	51	16	55	5
26	2	11	23	7	27	4	8	37	14	5	4	59	16	16	57	4
27	2	16	4	7	43	4	11	30	14	14	4	59	35	16	58	3
28	2	20	42	7	58	4	14	19	14	24	4	59	49	16	59	2
20	2	25	18	8	14	4	17	4	14	33	4	59	57	16	59	1
30	2	29	52	8	30	4	19	43	14	43	5	0	0	17	0	0
Deſc.	Merid. / Sepien. { Sig. 11. / Sig. 5.					Sig. 10. / Sig. 4.					Sig. 9. / Sig. 3. } Deſcend.					Gradus.

Tabula Latitudinis LUNÆ *in Eclipſibus.*

Sig. 0. Latit. Sept.
Sig. 6. Latit. Merid.

Gr.	M.	gr.	'	"	M.	G.
0	0	0	0	0	0	30
	10	0	0	52	50	
	20	0	1	44	40	
	30	0	2	37	30	
	40	0	3	29	20	
	50	0	4	21	10	
1	0	0	5	14	0	29
	10	0	6	6	50	
	20	0	6	58	40	
	30	0	7	50	30	
	40	0	8	43	20	
	50	0	9	35	10	
2	0	0	10	27	0	28
	10	0	11	20	50	
	20	0	12	12	40	
	30	0	13	4	30	
	40	0	13	56	20	
	50	0	14	49	10	
3	0	0	15	41	0	27
	10	0	16	33	50	
	20	0	17	25	40	
	30	0	18	18	30	
	40	0	19	10	20	
	50	0	20	2	10	
4	0	0	20	54	0	26
	10	0	21	46	50	
	20	0	22	39	40	
	30	0	23	31	30	
	40	0	24	23	20	
	50	0	25	15	10	
5	0	0	26	7	0	25

Sig. 5. Latit. Septen.
Sig. 11. Latit. Merid.

Sig. 0. Latit. Sept.
Sig. 6. Latit. Merid.

Gr.	M.	gr.	'	"	M.	Gr.
5	0	0	26	7	0	25
	10	0	26	59	50	
	20	0	27	51	40	
	30	0	28	43	30	
	40	0	29	35	20	
	50	0	30	27	10	
6	0	0	31	19	0	24
	10	0	32	11	50	
	20	0	33	3	40	
	30	0	33	55	30	
	40	0	34	47	20	
	50	0	35	39	10	
7	0	0	36	31	0	23
	10	0	37	23	50	
	20	0	38	15	40	
	30	0	39	7	30	
	40	0	39	58	20	
	50	0	40	50	10	
8	0	0	41	42	0	22
	10	0	42	34	50	
	20	0	43	25	40	
	30	0	44	17	30	
	40	0	45	9	20	
	50	0	46	1	10	
9	0	0	46	52	0	21
	10	0	47	44	50	
	20	0	48	35	40	
	30	0	49	27	30	
	40	0	50	18	20	
	50	0	51	10	10	
10	0	0	52	1	0	20

Sig. 5. Latit. Sept.
Sig. 11. Latit. Merid.

Sig. 0. Latit. Sept.
Sig. 6. Latit. Merid.

Gr.	M.	gr.	'	"	M.	Gr.
10	0	0	52	1	0	20
	10	0	52	53	50	
	20	0	53	44	40	
	30	0	54	36	30	
	40	0	55	27	20	
	50	0	56	19	10	
11	0	0	57	10	0	19
	10	0	58	2	50	
	20	0	58	53	40	
	30	0	59	44	30	
	40	1	0	36	20	
	50	1	1	27	10	
12	0	1	2	18	0	18
	10	1	3	9	50	
	20	1	4	0	40	
	30	1	4	51	30	
	40	1	5	42	20	
	50	1	6	33	10	
13	0	1	7	24	0	17
	10	1	8	15	50	
	20	1	9	6	40	
	30	1	9	57	30	
	40	1	10	48	20	
	50	1	11	38	10	
14	0	1	12	29	0	16
	10	1	13	20	50	
	20	1	14	10	40	
	30	1	15	1	30	
	40	1	15	52	20	
	50	1	16	42	10	
15	0	1	17	33	0	15

Sig. 5. Latit. Sept.
Sig. 11. Latit. Merid.

Tabula Latitudinis LUNÆ in Eclipſibus.

Sig. 0. Latit. Septent.
Sig. 6. Latit. Merid.

Gr.	°	gr.	′	″	M.	Gr.
15	0	1	17	33	0	15
	10	1	18	23	50	
	20	1	19	14	40	
	30	1	20	4	30	
	40	1	20	55	20	
	50	1	21	45	10	
16	0	1	22	36	0	14
	10	1	23	26	50	
	20	1	24	16	40	
	30	1	25	6	30	
	40	1	25	57	20	
	50	1	26	47	10	
17	0	1	27	37	0	13
	10	1	28	27	50	
	20	1	29	17	40	
	30	1	30	6	30	
	40	1	30	56	20	
	50	1	31	46	10	
18	0	1	32	36	0	12
	10	1	33	25	50	
	20	1	34	15	40	
	30	1	35	5	30	
	40	1	35	54	20	
	50	1	36	44	10	
19	0	1	37	34	0	11
	10	1	38	23	50	
	20	1	39	13	40	
	30	1	40	2	30	
	40	1	40	51	20	
	50	1	41	41	10	
20	0	1	42	30	0	10

Sig. 5. Latit. Sept.
Sig. 11. Latit. Merid.

Sig. 0. Latit. Septent.
Sig. 6. Latit. Merid.

Gr.	M.	gr.	′	″	M.	Gr.
20	0	1	42	30	0	10
	10	1	43	19	50	
	20	1	44	8	40	
	30	1	44	57	30	
	40	1	45	46	20	
	50	1	46	35	10	
21	0	1	47	24	0	9
	10	1	48	13	50	
	20	1	49	1	40	
	30	1	49	50	30	
	40	1	50	39	20	
	50	1	51	27	10	
22	0	1	52	16	0	8
	10	1	53	4	50	
	20	1	53	53	40	
	30	1	54	41	30	
	40	1	55	29	20	
	50	1	56	18	10	
23	0	1	57	6	0	7
	10	1	57	54	50	
	20	1	58	42	40	
	30	1	59	30	30	
	40	2	0	18	20	
	50	2	1	6	10	
24	0	2	1	54	0	6
	10	2	2	42	50	
	20	2	2	29	40	
	30	2	4	17	30	
	40	2	5	4	20	
	50	2	5	52	10	
25	0	2	6	39	0	5

Sig. 5. Latit. Sept.
Sig. 11. Latit. Merid.

Tabula Reductionis LUNÆ à propriâ Orbitâ ad Eclipticam, & vice verſa.

Anomalia Latitudinis à ☊.

Gradus.	Sig. 0. Sig. 6. Subtr. ′	″	Sig. 1. Sig. 7. Subtr. ′	″	Sig. 2. Sig. 8. Subtr. ′	″	Aſcend.
0	0	0	6	6	6	5	30
1	0	15	6	12	5	57	29
2	0	30	6	18	5	48	28
3	0	45	6	24	5	39	27
4	0	59	6	29	5	30	26
5	1	13	6	35	5	21	25
6	1	27	6	40	5	12	24
7	1	42	6	44	5	1	23
8	1	56	6	47	4	51	22
9	2	10	6	51	4	40	21
10	2	24	6	54	4	29	20
11	2	38	6	56	4	18	19
12	2	52	6	57	4	7	18
13	3	6	6	58	3	55	17
14	3	19	6	59	3	42	16
15	3	32	7	0	3	31	15
16	3	44	6	59	3	18	14
17	3	56	6	58	3	5	13
18	4	8	6	57	2	51	12
19	4	19	6	56	2	38	11
20	4	30	6	54	2	23	10
21	4	41	6	51	2	9	9
22	4	52	6	47	1	55	8
23	5	2	6	44	1	41	7
24	5	13	6	40	1	26	6
25	5	22	6	35	1	12	5
26	5	31	6	28	0	58	4
27	5	40	6	23	0	45	3
28	5	49	6	17	0	30	2
29	5	58	6	11	0	15	1
30	6	6	6	5	0	0	0
Deſc.	Add. Sig. 11. Sig. 5.		Add. Sig. 10. Sig. 4.		Add. Sig. 9. Sig. 3.		Gradus.

Anomalia Latitudinis à ☊.

Tabula diſtantiæ veræ Oppoſitionis & Conjunctionis à maximâ Obſcuratione. Adenda cum Latitudine Lunæ.

Latit. ☽. gr.	′	Diſtant. gr.	′
0	5	0	26
0	10	0	52
0	15	1	18
0	20	1	45
0	25	2	11
0	30	2	37
0	35	3	3
0	40	3	29
0	45	3	55
0	50	4	21
0	55	4	47
1	0	5	14
1	5	5	40
1	10	6	6
1	15	6	33
1	20	6	59
1	25	7	25
1	30	7	51
1	35	8	17
1	40	8	43

Sept. Aſc. } Subtr.
Merid. Aſc. }

Sept. Deſc. } Add.
Merid. Deſc. }

Tabula Horizontalium Parallaxium, Semidiametrorum, & Horarii Motûs SOLIS & LUNÆ.

Anomalia ☉ & ☽ Media.		Parallax. Horizon. ☉.		Semiang. Coni Umbræ.		Semid. Solis.		Horar. Solis.		Parallax. Horizont. ☽.		Semid. Lunæ.		Horar. Lunæ.		Anomalia ☉ & ☽ Media.	
		'	''	'	''	'	''	'	''	'	''	'	''	'	''		
0	0	2	18	13	44	16	2	2	23	55	44	15	22	29	40	0	12
	6	2	18	13	45	16	3	2	23	55	45	15	22	29	41	24	
	12	2	18	13	45	16	3	2	23	55	47	15	23	29	43	18	
	18	2	19	13	45	16	4	2	23	55	50	15	24	29	48	12	
	24	2	19	13	45	16	4	2	23	55	55	15	25	29	56	6	
1	0	2	19	13	40	16	5	2	23	56	2	15	27	30	6	0	11
	0	2	19	13	46	16	5	2	24	55	10	15	29	30	18	24	
	12	2	19	13	47	16	6	2	24	55	19	15	31	30	32	18	
	18	2	20	13	47	16	7	2	24	56	29	15	34	30	49	12	
	24	2	20	13	49	16	9	2	25	55	40	15	37	31	9	6	
2	0	2	20	13	51	16	11	2	25	56	51	15	40	31	31	0	10
	6	2	20	13	52	16	12	2	26	57	4	15	44	31	53	24	
	12	2	20	13	54	16	14	2	26	57	18	15	48	32	16	18	
	18	2	21	13	54	16	15	2	27	57	33	15	52	32	40	12	
	24	2	21	13	56	16	17	2	27	57	48	15	56	33	5	6	
3	0	2	21	13	58	16	19	2	28	58	3	16	0	33	30	0	9
	6	2	21	14	0	16	21	2	28	58	19	16	4	33	57	24	
	12	2	21	14	2	16	23	2	29	58	35	16	9	34	24	18	
	18	2	22	14	2	16	24	2	30	58	50	16	13	34	5	12	
	24	2	22	14	4	16	26	2	30	59	6	16	18	35	16	6	
4	0	2	22	14	6	16	28	2	31	59	21	16	22	35	41	0	8
	0	2	22	14	8	16	30	2	31	59	35	16	26	36	5	24	
	12	2	22	14	9	16	31	2	32	59	50	16	30	36	2[illegible]	18	
	18	2	23	14	10	16	33	2	32	60	3	16	34	36	48	12	
	24	2	23	14	11	16	34	2	32	60	15	16	37	37	8	5	
5	0	2	23	14	12	16	35	2	32	60	24	16	39	37	25	0	7
	6	2	23	14	13	15	36	2	33	60	32	16	41	37	41	24	
	12	2	23	14	13	15	36	2	33	60	38	16	43	37	54	18	
	18	2	24	14	13	15	37	2	33	60	43	16	44	38	3	12	
	24	2	24	14	13	15	37	2	33	60	46	16	44	38	8	5	
6	0	2	24	14	13	16	37	2	33	60	47	16	45	38	1[illegible]	0	6

Tabula Parallaxium Solis in circulo Altitudinis.

Altit. Solis.	Parallaxes Solis in Diſtantiâ.						Altit. Solis.	Parallaxes Solis in Diſtantiâ.						Altit. Solis.	Parallaxes Solis in Diſtantiâ.					
	Max.		Med.		Min.			Max.		Med.		Min.			Max.		Med.		Min.	
	′	″	′	″	′	″		′	″	′	″	′	″		′	″	′	″	′	″
0	2	18	2	21	2	24	30	2	1	2	2	2	4	60	1	9	1	11	1	12
1	2	18	2	21	2	24	31	1	59	2	0	2	2	61	1	6	1	8	1	10
2	2	18	2	21	2	24	32	1	57	1	59	2	1	62	1	4	1	6	1	7
3	2	18	2	21	2	24	33	1	56	1	57	1	59	63	1	2	1	3	1	5
4	2	18	2	21	2	24	34	1	54	1	55	1	57	64	1	0	1	1	1	3
5	2	18	2	21	2	24	35	1	53	1	54	1	56	65	0	58	0	59	1	0
6	2	18	2	20	2	23	36	1	52	1	53	1	54	66	0	56	0	57	0	58
7	2	17	2	20	2	23	37	1	50	1	51	1	53	67	0	54	0	55	0	56
8	2	17	2	20	2	23	38	1	49	1	50	1	52	68	0	52	0	53	0	54
9	2	17	2	19	2	22	39	1	47	1	48	1	50	69	0	49	0	50	0	51
10	2	17	2	19	2	22	40	1	46	1	47	1	49	70	0	47	0	48	0	49
11	2	16	2	18	2	21	41	1	44	1	45	1	47	71	0	45	0	46	0	47
12	2	16	2	18	2	21	42	1	42	1	43	1	45	72	0	43	0	43	0	44
13	2	15	2	17	2	20	43	1	41	1	42	1	44	73	0	40	0	40	0	41
14	2	15	2	17	2	20	44	1	39	1	40	1	42	74	0	38	0	38	0	29
15	2	14	2	16	2	19	45	1	38	1	39	1	41	75	0	36	0	36	0	37
16	2	13	2	15	2	18	46	1	36	1	37	1	39	76	0	33	0	33	0	34
17	2	13	2	15	2	18	47	1	34	1	35	1	37	77	0	31	0	31	0	32
18	2	12	2	14	2	17	48	1	32	1	33	1	35	78	0	29	0	29	0	30
19	2	11	2	13	2	16	49	1	31	1	32	1	34	79	0	26	0	26	0	27
20	2	11	2	13	2	15	50	1	20	1	30	1	32	80	0	24	0	24	0	25
21	2	10	2	12	2	14	51	1	27	1	28	1	30	81	0	22	0	22	0	23
22	2	9	2	11	2	13	52	1	25	1	26	1	28	82	0	19	0	19	0	20
23	2	8	2	10	2	12	53	1	23	1	24	1	26	83	0	17	0	17	0	18
24	2	[illegible]	2	9	2	11	54	1	22	1	23	1	24	84	0	15	0	15	0	15
25	2	6	2	8	2	10	55	1	19	1	21	1	22	85	0	12	0	12	0	12
26	2	5	2	7	2	8	56	1	17	1	19	1	19	86	0	9	0	9	0	9
27	2	4	2	6	2	7	57	1	15	1	17	1	18	87	0	7	0	7	0	7
28	2	3	2	4	2	6	58	1	13	1	15	1	16	88	0	5	0	5	0	5
29	2	2	2	3	2	5	59	1	11	1	13	1	14	89	0	2	0	2	0	2
30	2	1	2	2	2	4	60	1	9	1	11	1	12	90	[illegible]	0	0	0	0	0

Tabula Parallaxium Lunæ in Circulo Altitudinis.

Altitudo Lunæ.	Parallaxes Lunæ Horizontales.													
	55		56		57		58		59		66		61	
	′	″	′	″	′	″	′	″	′	″	′	″	′	″
0	55	0	56	0	57	0	58	0	59	0	60	0	61	0
1	54	59	55	59	56	59	58	59	58	59	59	59	60	59
2	54	59	55	59	56	59	58	59	58	59	59	59	60	59
3	54	57	55	57	56	57	57	58	58	57	59	57	60	57
4	54	54	55	54	56	54	57	55	58	54	59	54	60	54
5	54	51	55	51	56	51	57	51	58	50	59	50	60	50
6	54	47	55	47	56	47	57	47	58	46	59	46	60	45
7	54	42	55	42	56	42	57	42	58	41	59	40	60	40
8	54	36	55	35	56	35	57	35	58	34	59	32	60	32
9	54	29	55	27	56	27	57	27	58	26	59	24	60	24
10	54	19	55	18	56	18	57	18	58	16	59	14	60	24
11	54	9	55	9	56	9	57	9	58	7	59	4	60	4
12	53	59	54	59	55	58	56	58	57	56	58	53	59	52
13	53	47	54	47	55	46	56	46	57	44	58	41	59	40
14	53	35	54	34	55	33	56	32	57	30	58	28	59	26
15	53	21	54	20	55	18	56	17	57	15	58	14	59	12
16	53	6	54	5	55	3	56	1	56	59	57	58	58	56
17	52	50	53	49	54	47	55	45	56	42	57	41	58	39
18	52	35	53	33	54	30	55	28	56	25	57	23	58	21
19	52	18	53	16	54	13	55	10	56	7	57	3	58	0
20	51	59	52	57	53	53	54	49	55	46	56	43	57	40
21	51	39	52	37	53	32	54	28	53	25	56	22	52	19
22	51	18	52	16	53	11	54	7	55	4	56	0	56	57
23	50	57	51	55	52	50	53	45	54	41	55	36	56	32
24	50	35	51	33	52	26	53	20	54	16	55	11	56	7
25	50	12	51	10	52	2	52	55	53	51	55	46	55	41
26	49	48	50	45	51	37	52	30	53	25	55	20	55	15
27	49	22	50	18	51	11	52	4	52	59	54	53	54	47
28	48	56	49	51	50	44	51	37	52	31	54	25	54	18
29	48	29	49	23	50	16	51	9	52	2	53	56	53	50
30	48	2	48	55	49	47	50	40	51	32	53	25	53	18

Tabula Parallaxium Lunæ in Circulo Altitudinis.

Altitudo Lunæ.	Parallaxes Lunæ Horizontales. 55 ′	55 ″	56 ′	56 ″	57 ′	57 ″	58 ′	58 ″	59 ′	59 ″	60 ′	60 ″	61 ′	61 ″
30	48	0	48	55	49	47	50	40	51	32	52	25	53	18
31	47	31	48	25	49	17	50	10	51	2	51	53	52	45
32	47	1	47	54	48	46	49	38	50	30	51	21	52	12
33	46	31	47	22	48	13	49	5	49	57	50	48	51	39
34	46	0	46	50	47	41	48	32	49	23	50	14	51	5
35	45	27	46	17	47	8	47	58	48	49	49	40	50	31
36	44	54	45	43	46	33	47	23	48	14	49	4	49	54
37	44	20	45	8	45	58	46	48	47	38	48	27	49	16
38	43	43	44	32	45	22	46	12	47	0	47	49	48	37
39	43	9	43	56	44	45	45	34	46	22	47	10	47	58
40	42	34	43	20	44	8	44	56	45	44	46	31	47	18
41	41	57	42	43	43	30	44	17	45	4	45	51	46	38
42	41	19	42	5	42	50	43	36	44	23	45	9	45	55
43	40	41	41	26	42	10	42	54	43	40	44	26	45	12
44	40	2	40	46	41	29	42	12	42	57	43	42	44	27
45	39	21	40	5	40	47	41	30	42	14	42	58	43	40
46	38	39	39	23	39	55	40	48	41	31	42	13	42	56
47	37	57	38	40	39	22	40	4	40	43	41	27	42	9
48	37	15	37	57	38	38	39	19	40	0	40	41	41	22
49	36	32	37	13	37	54	38	34	39	14	39	54	40	34
50	35	48	36	28	37	8	37	48	38	27	39	7	39	46
51	35	4	35	42	36	22	37	2	37	40	38	18	38	56
52	34	18	34	56	35	35	36	14	36	51	37	28	38	6
53	33	33	34	10	34	47	35	25	36	1	36	37	37	14
54	32	46	33	23	33	59	34	35	35	11	35	46	36	23
55	31	59	32	35	33	10	33	45	34	20	34	55	35	31
56	31	11	31	46	32	21	32	55	33	29	34	3	34	38
57	30	21	30	56	31	31	32	5	32	38	33	10	33	44
58	29	32	30	6	30	41	31	13	31	45	32	16	32	50
59	28	43	29	16	29	50	30	20	30	51	31	22	31	55
60	27	53	28	25	28	57	29	27	29	58	30	28	31	0

Tabula Parallaxium Lunæ in Circulo Altitudinis.

Altitudo Lunæ.	Parallaxes Lunæ Horizontales.													
	55		56		57		58		59		60		61	
	′	″	′	″	′	″	′	″	′	″	′	″	′	″
60	27	53	28	25	28	57	29	27	29	58	30	28	31	0
61	27	3	27	33	28	5	28	34	29	4	29	33	30	3
62	26	11	26	40	27	9	27	40	28	9	28	37	29	6
63	25	19	25	47	26	15	26	45	27	13	27	41	28	9
64	24	27	24	54	25	21	25	49	26	16	26	44	27	11
65	23	34	24	1	24	27	24	54	25	20	25	47	26	14
66	22	41	23	7	23	32	23	58	24	23	24	49	25	14
67	21	48	22	12	22	36	23	1	23	25	23	50	24	14
68	20	54	21	17	21	40	22	4	22	27	22	51	23	14
69	20	0	20	22	20	44	21	7	21	29	21	52	22	13
70	19	5	19	26	19	47	20	20	20	31	20	52	21	12
71	18	10	18	30	18	50	19	12	19	32	19	51	20	11
72	17	15	17	34	17	53	18	14	18	33	18	50	19	9
73	16	20	16	37	16	55	17	15	17	33	17	49	18	7
74	15	24	15	40	15	57	16	16	16	33	16	48	17	5
75	14	28	14	43	14	59	15	16	15	32	15	47	16	3
76	13	31	13	46	14	1	14	16	14	31	14	45	15	0
77	12	34	12	48	13	2	13	16	13	30	13	43	13	57
78	11	36	11	50	12	3	12	16	12	29	12	40	12	53
79	10	39	10	51	11	3	11	16	11	28	11	37	11	49
80	9	42	9	52	10	3	10	15	10	26	10	34	10	45
81	8	44	8	53	9	2	9	13	9	23	9	31	9	40
82	7	46	7	54	8	2	8	12	8	20	8	28	8	36
83	6	48	6	55	7	2	7	10	7	17	7	25	7	32
84	5	50	5	56	6	2	6	8	6	15	6	22	6	28
85	4	51	4	57	5	2	5	7	5	13	5	19	5	24
86	3	53	3	58	4	2	4	6	4	11	4	16	4	20
87	2	55	2	59	3	2	3	4	3	8	3	12	3	15
88	1	57	1	59	2	2	2	3	2	5	2	8	2	10
89	0	59	1	0	1	1	1	2	1	3	1	4	1	5
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CANONES
MEDIORUM MOTUUM
STELLÆ SATURNI.

EPOCHÆ, SEU RADICES
Mediorum Motuum **SATURNI** numeratæ.

A MUNDI ORIGINE.

		S.	gr.	′	″
Ad meridiem proximè antecedentem Kalend. Januarii.	Medii motus ♄	5	56	40	50
	Aphelii	2	22	23	42
	Nodi Boræi.	0	54	49	7

A NABONASSARO.

Ad meridiem ultimi diei Epagomenæ Ægyptiorum.	Medii motus ♄	4	54	50	48
	Aphelii	3	33	49	11
	Nodi Boræi.	1	26	58	29

AB ALEXANDRI OBITU.

Ad meridiem diei proximè præcedentis menſ.m THOTH.	Medii motus ♄	1	18	54	52
	Aphelii	3	43	16	14
	Nodi Boræi.	1	31	13	47

A CHRISTO REDEMPTORE.

Ad meridiem ultimi Decembris poſt ejus Nativitatem.	Medii motus ♄	1	12	29	10
	Aphelii	3	50	28	42
	Nodi Borzi.	1	34	28	29

NON SEXAGENARIVS MEDIORVM MOTVVM SATVRNI.

In diebus, atque dierum Sexagenis & Scrupulis.

g.	1a	2a	3a					
S.	gr.	′	″	‴	iv.			
	S.	gr.	′	″	‴	iv.		
		S.	gr.	′	″	‴	iv.	
			S.	gr.	′	″	‴	iv.
0	0	2	0	35	27	8	44	51
0	0	4	1	10	54	17	29	42
0	0	6	1	46	21	26	14	33
0	0	8	2	21	48	34	59	24
0	0	10	2	57	15	43	44	15
0	0	12	3	32	42	52	20	6
0	0	14	4	8	10	1	13	57
0	0	16	4	43	37	9	58	48
0	0	18	5	19	4	18	43	39
0	0	20	5	54	31	27	28	30
0	0	22	6	29	58	36	13	21
0	0	24	7	5	25	44	58	12
0	0	26	7	40	52	53	43	3
0	0	28	8	10	20	2	27	54
0	0	30	8	51	47	11	12	45
0	0	32	9	27	14	19	57	36
0	0	34	10	2	41	28	42	27
0	0	36	10	38	8	37	27	18
0	0	38	11	13	35	46	12	9
0	0	40	11	49	2	54	57	0
0	0	42	12	24	30	3	41	51
0	0	44	12	59	47	12	26	42
0	0	46	13	35	24	21	11	33
0	0	48	14	10	51	29	56	24
0	0	50	14	46	18	38	41	15
0	0	52	15	21	45	47	26	6
0	0	54	15	57	12	56	10	57
0	0	56	16	22	40	4	55	48
0	0	58	17	8	7	13	40	39
0	1	0	17	43	34	22	25	30
gr.	′	″	‴	iv.				
′	″	‴	iv.					
″	‴	iv.						
‴	iv.							

Sexag.		1a	2a	3a					
gr.	S.	gr.	′	″	‴	iv.			
′		S.	gr.	′	″	‴	iv.		
″			S.	gr.	′	″	‴	iv.	
‴				S.	gr.	′	″	‴	iv.
31	0	1	2	18	19	1	31	10	21
32	0	1	4	18	44	28	39	55	12
33	0	1	6	19	29	55	48	40	3
34	0	1	8	20	5	22	57	24	54
35	0	1	10	20	40	50	6	9	45
36	0	1	12	21	16	17	14	54	36
37	0	1	14	21	51	44	23	39	27
38	0	1	16	22	27	11	32	24	18
39	0	1	18	23	2	38	41	9	9
40	0	1	20	23	38	5	49	54	0
41	0	1	22	24	13	32	58	38	51
42	0	1	24	24	49	0	7	23	42
43	0	1	26	25	24	27	16	8	33
44	0	1	28	25	59	54	24	53	24
45	0	1	30	26	35	21	33	38	15
46	0	1	32	27	10	48	42	23	6
47	0	1	34	27	46	15	51	7	57
48	0	1	36	28	21	42	59	52	48
49	0	1	38	28	57	10	8	37	39
50	0	1	40	29	32	37	17	22	30
51	0	1	42	30	8	4	26	7	21
52	0	1	44	30	43	31	34	52	12
53	0	1	46	31	18	58	43	37	3
54	0	1	48	31	54	25	52	21	54
55	0	1	50	32	29	53	1	0	45
56	0	1	52	33	5	20	9	51	36
57	0	1	54	33	40	47	18	36	27
58	0	1	56	34	16	14	27	21	18
59	0	1	58	34	51	41	36	6	9
60	0	2	0	35	27	8	44	51	0
′	gr.	′	″	‴	iv.				
″	′	″	‴	iv.					
‴	″	‴	iv.						
iv.	‴	iv.							

CANON SEXAGENARIUS MEDIORUM MOTUUM APHELII SATURNI.

In diebus, atque dierum Sexagenis & Scrupulis.

Sexag.		12	22	32					
gr.	S.	gr.	′	″	‴	iv.			
′		S.	gr.	′	″	‴	iv.		
″			S.	gr.	′	″	‴	iv.	
‴				S.	gr.	′	″	‴	iv.
1	0	0	0	0	13	15	26	44	6
2	0	0	0	0	26	22	53	28	12
3	0	0	0	0	39	34	20	12	18
4	0	0	0	0	52	45	46	56	24
5	0	0	0	1	5	57	13	40	30
6	0	0	0	1	19	8	40	24	36
7	0	0	0	1	32	20	7	8	42
8	0	0	0	1	45	31	33	52	48
9	0	0	0	1	58	43	0	36	54
10	0	0	0	2	11	54	27	21	0
11	0	0	0	2	25	5	54	5	6
12	0	0	0	2	38	17	20	49	12
13	0	0	0	2	51	28	47	33	18
14	0	0	0	3	4	40	14	17	24
15	0	0	0	3	17	51	41	1	30
16	0	0	0	3	31	3	7	45	36
17	0	0	0	3	44	14	34	29	42
18	0	0	0	3	57	26	1	13	48
19	0	0	0	4	10	37	27	57	54
20	0	0	0	4	23	48	54	42	0
21	0	0	0	4	37	0	21	26	6
22	0	0	0	4	50	11	48	10	12
23	0	0	0	5	3	23	14	54	18
24	0	0	0	5	16	34	41	38	24
25	0	0	0	5	29	46	8	22	30
26	0	0	0	5	42	57	35	6	36
27	0	0	0	5	56	9	1	50	42
28	0	0	0	6	9	20	28	34	48
29	0	0	0	6	22	31	55	18	54
30	0	0	0	6	35	43	22	3	0
′	gr.	′	″	‴	iv.				
″	′	″	‴	iv.					
‴	″	‴	iv.						
iv.	‴	iv.							

Sexag.		12	22	32					
gr.	S.	gr.	′	″	‴	iv.			
′		S.	gr.	′	″	‴	iv.		
″			S.	gr.	′	″	‴	iv.	
‴				S.	gr.	′	″	‴	iv.
31	0	0	0	6	48	54	48	47	6
32	0	0	0	7	2	6	15	31	12
33	0	0	0	7	15	17	42	15	18
34	0	0	0	7	28	29	8	59	24
35	0	0	0	7	41	40	35	43	30
36	0	0	0	7	54	52	2	27	36
37	0	0	0	8	8	3	29	11	42
38	0	0	0	8	21	14	55	55	48
39	0	0	0	8	34	26	22	39	54
40	0	0	0	8	47	37	49	23	0
41	0	0	0	9	9	49	16	8	6
42	0	0	0	9	14	0	42	52	12
43	0	0	0	9	27	12	9	30	18
44	0	0	0	9	49	23	36	20	24
45	0	0	0	9	53	35	3	4	30
46	0	0	0	10	6	46	29	48	36
47	0	0	0	10	19	57	50	32	42
48	0	0	0	10	33	9	23	16	48
49	0	0	0	10	46	20	50	0	54
50	0	0	0	10	59	32	16	45	0
51	0	0	0	11	12	43	43	29	6
52	0	0	0	11	25	55	10	13	12
53	0	0	0	11	39	6	36	57	18
54	0	0	0	11	52	18	3	41	24
55	0	0	0	12	5	29	30	25	30
56	0	0	0	12	18	40	57	9	36
57	0	0	0	12	31	52	23	53	42
58	0	0	0	12	45	3	50	37	48
59	0	0	0	12	58	15	17	21	54
60	0	0	0	13	11	26	44	6	0
′	gr.	′	″	‴	iv.				
″	′		‴	iv.					
‴	″	‴	iv.						
iv.	‴	iv.							

ON SEXAGENARIVS MEDIORVM MOTVVM NODI BOREI SATVRNI.

In diebus, atque dierum Sexagenis & Scrupulis.

g.	1a	2a	3a					
S.	gr.	'	"	'''	iv.			
	S.	gr.	'	"	'''	iv.		
		S.	gr.	'	"	'''	iv.	
			S.	gr.	'	"	'''	iv.
o	o	o	o	5	56	19	1	21
o	o	o	o	11	52	38	2	42
o	o	o	o	17	48	57	4	3
o	o	o	o	23	45	16	5	24
o	o	o	o	29	41	35	6	45
o	o	o	o	35	37	54	8	6
o	o	o	o	41	34	13	9	27
o	o	o	o	47	30	32	10	48
o	o	o	o	53	26	51	12	9
o	o	o	o	59	23	10	13	30
o	o	o	1	5	19	29	14	51
o	o	o	1	11	15	48	16	12
o	o	o	1	17	12	7	17	33
o	o	o	1	23	8	26	18	54
o	o	o	1	29	4	45	20	15
o	o	o	1	35	1	4	21	36
o	o	o	1	40	57	23	22	57
o	o	o	1	46	53	42	24	18
o	o	o	1	52	50	1	25	39
o	o	o	1	58	46	20	27	o
o	o	o	2	4	42	39	28	21
o	o	o	2	10	38	58	29	42
o	o	o	2	16	35	17	31	3
o	o	o	2	22	21	36	32	24
o	o	o	2	28	27	55	33	45
o	o	o	2	34	24	14	35	6
o	o	o	2	40	20	33	36	27
o	o	o	2	46	16	52	37	48
o	o	o	2	52	13	11	39	9
o	o	o	2	58	9	30	40	30
gr.	'	"	'''	iv.				
'	"	'''	iv.					
"	'''	iv.						
'''	iv.							

Sexag.		1a	2a	3a					
gr.	S.	gr.	'	"	'''	iv.			.
'		S.	gr.	'	"	'''	iv.		
"			S.	gr.	'	"	'''	iv.	
'''				S.	gr.	'	"	'''	iv.
31	o	o	o	3	4	5	49	41	51
32	o	o	o	3	10	2	8	43	12
33	o	o	o	3	15	58	27	44	33
34	o	o	o	3	21	54	46	45	54
35	o	o	o	3	27	51	5	47	15
36	o	o	o	3	33	47	24	48	36
37	o	o	o	3	39	43	43	49	57
38	o	o	o	3	45	40	2	51	18
39	o	o	o	3	51	36	21	52	39
40	o	o	o	3	57	32	40	54	o
41	o	o	o	4	3	28	59	55	21
42	o	o	o	4	9	25	18	56	42
43	o	o	o	4	15	21	37	58	3
44	o	o	o	4	21	17	56	59	24
45	o	o	o	4	27	14	16	o	45
46	o	o	o	4	33	10	35	2	6
47	o	o	o	4	39	6	54	3	27
48	o	o	o	4	45	3	12	4	48
49	o	o	o	4	50	59	32	6	9
50	o	o	o	4	56	55	51	7	30
51	o	o	o	5	2	52	10	8	51
52	o	o	o	5	8	48	29	10	12
53	o	o	o	5	14	44	48	11	33
54	o	o	o	5	20	41	7	12	54
55	o	o	o	5	26	37	26	14	15
56	o	o	o	5	32	33	45	15	36
57	o	o	o	5	38	30	4	16	57
58	o	o	o	5	44	26	23	18	18
59	o	o	o	5	50	22	42	19	39
60	o	o	o	5	56	19	1	21	o
'	gr.	'	"	'''	iv.				
"	'	"	'''	iv.					
'''	"	'''	iv.						
iv.	'''	iv.							

RADICES *Mediorum Motuum SATURNI in Annis Julianis collectis, juxta formam vulgarem.*

EPOCHÆ.	Longitudo ♄.				Aphelion ♄.				Nod. Boreus ♄.			
	S.	gr.	′	″	S.	gr.	′	″	S.	gr.	′	″
Mundi 1	11	26	40	50	4	22	23	42	1	24	49	7
Christi 1	1	12	29	10	7	20	28	42	3	4	28	29
1601	6	28	24	17	8	26	10	0	3	20	32	31
1621	3	3	6	13	8	26	36	46	3	20	44	34
1641	11	7	48	9	8	27	3	32	3	20	56	37
1661	7	12	30	5	8	27	30	18	3	21	8	40
1681	3	17	12	2	8	27	57	4	3	21	20	43

Medii Motus SATURNI in Annis Julianis expanſis.

Anni	1	0	12	13	36	0	0	1	20	0	0	0	36
	2	0	24	27	11	0	0	2	40	0	0	1	12
	3	1	6	40	47	0	0	4	1	0	0	1	48
B	4	1	18	56	23	0	0	5	21	0	0	2	25
	5	2	1	9	59	0	0	6	41	0	0	3	1
	6	2	13	23	34	0	0	8	2	0	0	3	37
	7	2	25	37	10	0	0	9	22	0	0	4	13
B	8	3	7	52	46	0	0	10	42	0	0	4	49
	9	3	20	6	22	0	0	12	3	0	0	5	25
	10	4	2	19	58	0	0	13	23	0	0	6	1
	11	4	14	33	33	0	0	14	43	0	0	6	37
B	12	4	26	49	10	0	0	16	4	0	0	7	14
	13	5	9	2	45	0	0	17	24	0	0	7	50
	14	5	21	16	21	0	0	18	44	0	0	8	26
	15	6	3	29	57	0	0	20	4	0	0	9	2
B	16	6	15	45	33	0	0	21	25	0	0	9	38
	17	6	27	59	9	0	0	22	45	0	0	10	14
	18	7	10	12	44	0	0	24	5	0	0	10	51
	19	7	22	26	20	0	0	25	26	0	0	11	27
B	20	8	4	41	56	0	0	26	46	0	0	12	3
	40	4	9	23	52	0	0	53	32	0	0	24	6
	60	0	14	5	49	0	1	20	18	0	0	36	9
	80	8	18	47	45	0	1	47	4	0	0	48	12
	100	4	23	29	42	0	2	13	50	0	1	0	15
	200	9	16	59	23	0	4	27	40	0	2	0	30
	300	2	10	20	5	0	6	41	29	0	3	0	45
	400	7	3	58	46	0	8	55	19	0	4	1	0
	500	11	27	28	28	0	11	9	9	0	5	1	16
	600	4	20	58	10	0	13	22	59	0	6	1	31
	700	9	14	27	51	0	15	36	49	0	7	1	46
	800	2	7	57	33	0	17	50	39	0	8	2	1
	900	7	1	27	15	0	20	4	29	0	9	2	16
	1000	11	24	56	56	0	22	18	19	0	10	2	31
	2000	11	19	53	53	1	14	36	37	0	20	5	2
	3000	11	14	50	49	2	6	54	56	1	0	7	33
	4000	11	9	47	46	2	29	13	15	1	10	10	5
	5000	11	4	44	42	3	21	31	34	1	20	12	36
	6000	10	29	41	38	4	13	49	53	2	0	15	7

Medii motus SATURNI in Menſibus anni communis.

IENSES.	Longitudo ♄. S.	gr.	′	″	Aphelion ♄. S.	gr.	′	″	Nod. Boreus ♄. S.	gr.	′	″
uarius	0	0	0	0	0	0	0	0	0	0	0	0
oruarius	0	1	2	18	0	0	0	6	0	0	0	3
rtius	0	1	58	35	0	0	0	13	0	0	0	6
rilis	0	3	0	53	0	0	0	19	0	0	0	9
ius	0	4	1	11	0	0	0	26	0	0	0	12
nius	0	5	2	29	0	0	0	33	0	0	0	15
ius	0	6	3	47	0	0	0	40	0	0	0	18
guſtus	0	7	6	5	0	0	0	47	0	0	0	21
otember	0	8	8	24	0	0	0	53	0	0	0	24
tober	0	9	8	41	0	0	1	0	0	0	0	27
vember	0	10	11	0	0	0	1	7	0	0	0	30
cember	0	11	11	17	0	0	1	13	0	0	0	33

Medii motus SATURNI in Diebus, Horis & Scrupulis.

es.	Longit. ♄. gr.	′	″	Aph. ♄ ′	″	Nod. ♄ ′	″
1	0	2	1	0	0	0	0
2	0	4	1	0	0	0	0
3	0	6	2	0	0	0	0
4	0	8	2	0	0	0	0
5	0	10	3	0	1	0	0
6	0	12	4	0	1	0	0
7	0	14	4	0	1	0	0
8	0	16	5	0	1	0	0
9	0	18	5	0	1	0	1
	0	20	6	0	2	0	1
1	0	22	7	0	2	0	1
2	0	24	[illegible]	0	2	0	1
3	0	26	8	0	2	0	1
4	0	28	8	0	2	0	1
15	0	30	9	0	3	0	1
16	0	32	9	0	3	0	1
17	0	34	10	0	3	0	1
18	0	36	11	0	3	0	2
19	0	38	11	0	3	0	2
20	0	40	12	0	4	0	2
21	0	42	12	0	4	0	2
22	0	44	13	0	4	0	2
23	0	46	14	0	4	0	2
24	0	48	14	0	4	0	2
25	0	50	15	0	5	0	2
26	0	52	15	0	5	0	2
27	0	54	16	0	5	0	2
28	0	56	17	0	5	0	3
29	0	58	17	0	5	0	3
30	1	0	18	0	6	0	3
31	1	2	18	0	6	0	3

Horæ ′	Long. ♄ ′	″	″	Long. ♄ ′	″
1	0	5	31	2	36
2	0	10	32	2	41
3	0	15	33	2	46
4	0	20	34	2	51
5	0	25	35	2	56
6	0	30	36	3	1
7	0	35	37	3	6
8	0	40	38	3	11
9	0	45	39	3	16
10	0	50	40	3	22
11	0	55	41	3	27
12	1	0	42	3	32
13	1	5	43	3	37
14	1	10	44	3	42
15	1	15	45	3	47
16	1	20	46	3	52
17	1	25	47	3	57
18	1	30	48	4	2
19	1	35	49	4	7
20	1	40	50	4	12
21	1	46	51	4	17
22	1	51	52	4	22
23	1	56	53	4	27
24	2	1	54	4	32
25	2	6	55	4	37
26	2	11	56	4	42
27	2	16	57	4	48
28	2	21	58	4	53
29	2	26	59	4	58
30	2	31	60	5	3
″	″	‴	‴	″	‴

CANONES

PROSTHAPHÆRESIUM SATURNI
in Ellipſi.

ET

PARALLAXIUM ORBIS ANNUI IN
SATURNO.

UNA CUM

MAXIMA ♄ LATITUDINE GEOCENTRICA.

Proſthaphæreſes ♄ in Ellipſi.

Sig. 0. Æquatio Subtr. gr. ′ ″	Sig. 0. Logar.	Sig. 1. Æquatio Subtr. gr. ′ ″	Sig. 1. Logar.	Sig. 2. Æquatio Subtr. gr. ′ ″	Sig. 2. Logar.	Grad.
0 0 0	600350	3 6 32	600064	5 30 30	599254	30
0 6 28	600350	3 12 15	600045	5 34 6	599219	29
0 12 55	600349	3 17 55	600025	5 37 36	599184	28
0 19 23	600347	3 23 31	600005	5 41 2	599148	27
0 25 50	600345	3 29 4	599985	5 44 22	599112	26
0 32 16	600342	3 34 35	599963	5 47 36	599076	25
0 38 42	600339	3 40 3	599941	5 50 43	599039	24
0 45 8	600335	3 45 27	599919	5 53 46	599002	23
0 51 33	600330	3 50 47	599896	5 56 42	598965	22
0 57 57	600324	3 56 4	599872	5 59 33	598927	21
1 4 20	600318	4 1 17	599848	6 2 16	598888	20
1 10 42	600311	4 6 26	599823	6 4 54	598850	19
1 17 2	600304	4 11 31	599798	6 7 27	598811	18
1 23 23	600296	4 16 32	599771	6 9 53	598772	17
1 20 41	600287	4 21 29	599745	6 12 12	598733	16
1 35 58	600277	4 26 22	599718	6 14 25	598693	15
1 42 14	600268	4 31 11	599691	6 16 33	598653	14
1 48 29	600258	4 35 55	599663	6 18 31	598612	13
1 54 42	600247	4 40 37	599634	6 20 25	598571	12
2 0 53	600235	4 45 13	599605	6 22 12	598530	11
2 7 2	600222	4 49 44	599575	6 23 53	598480	10
2 13 9	600209	4 54 10	599545	6 25 25	598448	9
2 19 15	600196	4 58 32	599515	6 26 53	598406	8
2 25 19	600181	5 2 49	599484	6 28 12	598364	7
2 31 20	600166	5 7 1	599452	6 29 25	598322	6
2 37 18	600151	5 11 8	599420	6 30 32	598280	5
2 43 14	600135	5 15 11	599388	6 31 32	598237	4
2 49 7	600118	5 19 9	599355	6 32 26	598194	3
2 54 58	600101	5 23 0	599321	6 33 13	598151	2
3 0 45	600083	5 26 47	599288	6 33 53	598108	1
3 6 32	600064	5 30 30	599254	6 34 25	598065	0
Adde		Adde.		Adde.		
Sig. 11.		Sig. 10.		Sig. 9.		

Proſthaphæreſes ♄ *in Ellipſi.*

Grad.	Sig. 3.		Sig. 4.		Sig. 5.		Grad.
	Æquatio Subtr.	Logar.	Æquatio Subtr.	Logar.	Æquatio Subtr.	Logar.	
	gr. ′ ″		gr. ′ ″		gr. ′ ″		
0	6 34 25	598065	5 53 49	596771	3 29 57	595746	30
1	6 34 50	598021	5 50 37	596730	3 23 43	595721	29
2	6 35 8	597978	5 47 17	596690	3 17 25	595696	28
3	6 35 16	597934	5 43 48	596650	3 11 1	595673	27
4	6 35 19	597891	5 40 12	596610	3 4 33	595650	26
5	6 35 16	597847	5 36 30	596570	2 58 2	595628	25
6	6 35 6	597804	5 32 42	596532	2 51 26	595607	24
7	6 34 47	597760	5 28 47	596493	2 44 46	595586	23
8	6 34 21	597716	5 24 44	596455	2 38 3	595517	22
9	6 33 47	597673	5 20 34	596417	2 31 17	595548	21
10	6 33 5	597629	5 16 17	596380	2 24 28	595530	20
11	6 32 16	597585	5 11 54	596342	2 17 35	595513	19
12	6 31 21	597541	5 7 25	596206	2 10 39	595497	18
13	6 30 18	597497	5 2 50	596270	2 3 40	595482	17
14	6 29 8	597453	4 58 9	596234	1 56 28	595467	16
15	6 27 51	597410	4 53 21	596199	1 49 33	595452	15
16	6 26 26	597366	4 48 27	596165	1 42 26	595440	14
17	6 24 53	597322	4 43 27	596131	1 35 16	595428	13
18	6 23 12	597279	4 38 20	596098	1 28 4	595416	12
19	6 21 27	597235	4 33 8	596065	1 20 51	595406	11
20	6 19 34	597192	4 27 50	596032	1 13 36	595398	10
21	6 17 32	597149	4 22 26	596001	1 6 19	595388	9
22	6 15 23	597106	4 16 57	595970	0 59 1	595381	8
23	6 13 6	597063	4 11 23	595939	0 51 41	595374	7
24	6 10 42	597021	4 5 43	595910	0 44 20	595368	6
25	6 8 11	596979	3 59 58	595880	0 36 58	595362	5
26	6 5 32	596937	3 54 8	595852	0 29 35	595358	4
27	6 2 48	596895	3 48 12	595824	0 22 12	595355	3
28	5 59 56	596852	3 42 11	595797	0 14 48	595353	2
29	5 56 56	596812	3 36 6	595771	0 7 24	595351	1
30	5 53 49	596771	3 29 57	595746	0 0 0	595351	0
	Adde.		Adde.		Adde.		
	Sig. 8.		Sig. 7.		Sig. 6.		

CANON LATITUDINARIUS SATURNI.

Anomalia Latitudinis à ☊. Reductio Subtr.

Grad.	Sig. 0. Sept. Aſc. Sig. 6. Merid. Aſc. Inclinat. gr. ′ ″	Re-duct. ″	cur tat P	Scr. Prop. ′ ″	Sig. 1. Sept. Aſc. Sig. 7. Merid. Aſc. Inclinat gr. ′ ″	Re-duct ′ ″	Cur-tat. P	Scr. Prop. ′ ″	Sig. 2. Sept. Aſc. Sig. 8. Merid. Aſc. Inclinat. gr. ′ ″	Re-duct. ′ ″	Cur-tat. P	Scr. Prop. ′ ″	Grad.
0	0 0 0	0 0	0	0 0	1 15 15	1 27	10	30 0	2 10 19	1 27	31	51 57	30
1	0 2 37	0 4	0	1 3	1 17 31	1 29	10	30 54	2 11 37	1 25	31	52 28	29
2	0 5 15	0 8	0	2 6	1 19 46	1 30	11	31 48	2 12 53	1 23	32	52 58	28
3	0 7 52	0 11	0	3 8	1 21 59	1 32	12	32 41	2 14 6	1 21	32	53 27	27
4	0 10 30	0 15	0	4 11	1 24 10	1 34	12	33 33	2 15 16	1 19	33	53 56	26
5	0 13 6	0 18	0	5 14	1 26 18	1 35	13	34 25	2 16 23	1 17	33	54 23	25
6	0 15 44	0 22	0	6 17	1 28 26	1 36	14	35 16	2 17 28	1 15	34	54 49	24
7	0 18 21	0 25	1	7 10	1 30 35	1 37	15	36 6	2 18 31	1 13	35	55 14	23
8	0 20 57	0 28	1	9 21	1 32 37	1 38	15	36 56	2 19 32	1 11	35	55 38	22
9	0 23 33	0 32	1	8 23	1 34 41	1 39	16	37 45	2 20 30	1 8	36	56 1	21
10	0 26 8	0 35	1	10 25	1 36 43	1 39	17	38 34	2 21 25	1 5	36	56 23	20
11	0 28 42	0 38	1	11 27	1 38 44	1 40	18	39 22	2 22 18	1 3	37	56 44	19
12	0 31 16	0 42	2	12 29	1 40 42	1 40	18	40 9	2 23 8	1 0	37	57 4	18
13	0 33 50	0 45	2	13 30	1 42 38	1 41	19	40 55	2 23 55	0 57	37	57 23	17
14	0 36 23	0 48	2	14 31	1 44 32	1 41	20	41 40	2 24 40	0 54	38	57 40	16
15	0 38 56	0 51	3	15 32	1 46 24	1 41	20	42 26	2 25 22	0 51	38	57 57	15
16	0 41 27	0 54	3	10 32	1 48 15	1 41	21	43 10	2 26 1	0 48	38	58 13	14
17	0 43 59	0 57	3	17 32	1 50 3	1 40	21	43 53	2 26 38	0 45	39	58 28	13
18	0 45 29	1 0	4	18 32	1 51 49	1 40	22	44 35	2 27 12	0 42	39	58 42	12
19	0 48 59	1 3	4	19 32	1 53 34	1 39	23	45 16	2 27 44	0 38	39	58 54	11
20	0 51 27	1 5	4	20 31	1 55 16	1 39	23	45 57	2 28 13	0 35	40	59 5	10
21	0 53 55	1 8	5	21 30	1 56 56	1 38	24	46 37	2 28 40	0 32	40	59 16	9
22	0 56 22	1 11	5	22 29	1 58 34	1 38	25	47 16	2 29 3	0 28	40	59 25	8
23	0 58 48	1 13	6	23 27	2 0 10	1 37	26	47 54	2 20 24	0 25	40	59 33	7
24	1 1 11	1 15	6	24 24	2 1 44	1 36	27	48 32	2 29 41	0 22	41	59 40	6
25	1 3 35	1 17	7	25 21	2 3 16	1 35	27	49 9	2 29 55	0 18	41	50 46	5
26	1 5 57	1 19	8	26 18	2 4 45	1 34	28	49 44	2 30 9	0 15	41	59 52	4
27	1 8 18	1 21	8	27 14	2 6 13	1 32	28	50 18	2 30 19	0 11	41	59 56	3
28	1 10 38	1 23	9	28 10	2 7 37	1 30	29	50 52	2 30 26	0 8	41	59 58	2
29	1 12 57	1 25	10	29 5	2 8 59	1 29	30	51 25	2 30 29	0 4	41	59 59	1
30	1 15 15	1 27	10	30 0	2 10 19	1 27	31	51 57	2 30 30	0 0	41	60 0	0
	Sig. 11. Merid. Deſc. Sig. 5. Sept. Deſc.				Sig. 10. Merid. Deſc. Sig. 4. Sept. Deſc.				Sig. 9. Merid. Deſc. Sig. 3. Sept. Deſc.				

Anomalia Latitudinis à ☋. Reductio Add.

Parallaxis Orbis Annui in ♄ Addenda.

Grad.	Anomalia Orbis Sig. 0. Numerus Logarithmicus. 898000 gr.	'	899000 gr.	'	900000 gr.	'	901000 gr.	'	902000 gr.	'	903000 gr.	'	904000 gr.	'	905000 gr.	'	906000 gr.	'	Grad.
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
1	0	4	0	5	0	5	0	5	0	6	0	0	0	6	0	6	0	6	29
2	0	10	0	11	0	11	0	11	0	11	0	12	0	12	0	12	0	12	28
3	0	16	0	16	0	16	0	17	0	17	0	17	0	18	0	18	0	19	27
4	0	21	0	21	0	22	0	23	0	22	0	23	0	24	0	24	0	25	26
5	0	26	0	27	0	27	0	28	0	28	0	29	0	30	0	30	0	31	25
6	0	31	0	22	0	33	0	33	0	34	0	35	0	35	0	35	0	37	24
7	0	37	0	37	0	38	0	39	0	40	0	41	0	41	0	42	0	43	23
8	0	42	0	43	0	43	0	44	0	45	0	46	0	47	0	48	0	49	22
9	0	47	0	48	0	49	0	50	0	51	0	52	0	53	0	54	0	56	21
10	0	52	0	53	0	54	0	55	0	57	0	58	0	59	1	0	1	2	20
11	0	57	0	59	1	0	1	1	1	2	1	4	1	5	1	6	1	8	19
12	1	2	1	4	1	5	1	6	1	8	1	9	1	11	1	12	1	14	18
13	1	8	1	9	1	10	1	12	1	13	1	15	1	17	1	18	1	20	17
14	1	13	1	14	1	16	1	17	1	19	1	21	1	22	1	24	1	26	16
15	1	18	1	20	1	21	1	23	1	24	1	26	1	28	1	30	1	22	15
16	1	23	1	24	1	26	1	28	1	30	1	32	1	34	1	36	1	38	14
17	1	28	1	30	1	32	1	34	1	35	1	37	1	39	1	42	1	44	13
18	1	33	1	35	1	37	1	30	1	41	1	43	1	45	1	48	1	50	12
19	1	38	1	40	1	42	1	45	1	46	1	49	1	51	1	54	1	50	11
20	1	43	1	45	1	47	1	50	1	52	1	54	1	57	1	59	2	2	10
21	1	48	1	50	1	42	1	55	1	57	2	0	2	2	2	5	2	8	9
22	1	53	1	55	1	58	2	0	2	3	2	5	2	8	2	11	2	14	8
23	1	58	2	0	2	3	2	6	2	8	2	11	2	13	2	16	2	10	7
24	2	3	2	5	2	8	2	11	2	14	2	16	2	19	2	22	2	25	6
25	2	8	2	10	2	13	2	16	2	10	2	22	2	25	2	28	2	31	5
26	2	12	2	14	2	18	2	21	2	24	2	27	2	30	2	33	2	37	4
27	2	17	2	20	2	23	2	26	2	29	2	32	2	35	2	39	2	42	3
28	2	22	2	25	2	28	2	31	2	35	2	38	2	41	2	44	2	48	2
29	2	27	2	30	2	33	2	36	2	40	2	43	2	46	2	50	2	53	1
30	2	31	2	35	2	38	2	41	2	45	2	48	2	52	2	55	2	59	0

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 11.

Parallaxis Orbis Annui in ♄ Addenda.

Anomalia Orbis Sig. 1.

Numerus Logarithmicus.

Grad.	898000	899000	900000	901000	902000	903000	904000	905000	906000	Grad.
	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	
0	2 31	2 35	2 38	2 41	2 45	2 48	2 52	2 55	2 59	30
1	2 36	2 40	2 43	2 46	2 50	2 54	2 57	3 1	3 5	29
2	2 41	2 44	2 48	2 51	2 55	2 59	3 3	3 7	3 11	28
3	2 45	2 49	2 53	2 56	2 0	3 4	3 8	3 12	3 16	27
4	2 50	2 53	2 57	3 1	3 5	3 9	3 13	3 17	3 21	26
5	2 54	2 58	3 2	3 6	3 10	3 14	3 18	3 22	3 27	25
6	2 59	3 3	3 7	3 11	3 15	3 19	3 23	3 28	3 32	24
7	3 3	3 7	3 11	3 10	3 20	3 24	3 28	3 33	3 37	23
8	3 8	3 12	3 16	3 20	3 24	3 20	3 33	3 38	3 42	22
0	3 12	3 16	3 20	3 25	3 29	3 33	3 38	3 43	3 48	21
10	3 16	3 21	3 25	3 29	3 34	3 38	3 43	3 48	3 53	20
11	3 21	3 25	3 29	3 34	3 38	3 43	3 48	3 53	3 58	10
12	3 25	3 29	3 34	3 38	3 43	3 48	3 53	3 58	4 3	18
13	3 29	3 33	3 38	3 43	3 47	3 53	3 58	4 3	4 8	17
14	3 33	3 38	3 42	3 47	3 52	3 57	4 2	4 8	4 13	16
15	3 37	3 42	3 47	3 52	3 56	4 2	4 7	4 12	4 18	15
16	3 41	3 46	3 51	3 56	4 1	4 6	4 11	4 17	4 22	14
17	3 45	3 50	3 55	4 0	4 5	4 10	4 16	4 21	4 27	13
18	3 49	3 54	3 59	4 4	4 9	4 15	4 20	4 26	4 32	12
19	3 53	3 58	4 3	4 8	4 14	4 19	4 25	4 31	4 36	11
20	3 56	4 2	4 7	4 12	4 18	4 23	4 29	4 35	4 41	10
21	4 0	4 5	4 11	4 16	4 22	4 27	4 33	4 39	4 45	9
22	4 4	4 9	4 15	4 20	4 26	4 32	4 38	4 44	4 50	8
23	4 7	4 13	4 19	4 24	4 30	4 36	4 42	4 48	4 54	7
24	4 11	4 16	4 22	4 28	4 34	4 40	4 46	4 52	4 58	6
25	4 14	4 20	4 26	4 32	4 37	4 44	4 50	4 56	5 3	5
26	4 18	4 23	4 29	4 35	4 41	4 47	4 54	5 0	5 7	4
27	4 21	4 27	4 33	4 39	4 45	4 51	4 57	5 4	5 11	3
28	4 24	4 30	4 36	4 42	4 48	4 55	5 1	5 8	5 15	2
29	4 28	4 34	4 40	4 46	4 52	4 58	5 5	5 12	5 19	1
30	4 31	4 37	4 43	4 49	4 55	5 2	5 9	5 15	5 22	0

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 10.

Parallaxis Orbis Annui in ♄ Addenda.

Anomalia Orbis Sig. 2.

Numerus Logarithmicus.

Grad.	898000	899000	900000	901000	902000	903000	904000	905000	906000	Grad.
	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	
0	4 31	4 37	4 43	4 49	4 55	5 2	5 9	5 15	5 22	30
1	4 34	4 40	4 46	4 52	4 59	5 6	5 12	5 19	5 26	29
2	4 37	4 43	4 49	4 58	5 2	5 9	5 16	5 23	5 30	28
3	4 40	4 46	4 52	4 59	5 5	5 12	5 19	5 26	5 33	27
4	4 43	4 49	4 55	5 2	5 8	5 15	5 22	5 30	5 37	26
5	4 45	4 52	4 58	5 5	5 11	5 18	5 25	5 33	5 40	25
6	4 48	4 54	5 1	5 8	5 14	5 22	5 29	5 36	5 43	24
7	4 50	4 57	5 4	5 11	5 17	5 25	5 32	5 30	5 47	23
8	4 53	5 0	5 6	5 13	5 20	5 27	5 35	5 42	5 50	22
9	4 55	5 2	5 9	5 16	5 22	5 30	5 38	5 45	5 53	21
10	4 58	5 5	5 11	5 19	5 26	5 33	5 40	5 48	5 56	20
11	5 0	5 7	5 14	5 21	5 28	5 36	5 43	5 50	5 58	19
12	5 2	5 9	5 16	5 23	5 31	5 38	5 45	5 53	6 1	18
13	5 5	5 12	5 19	5 26	5 33	5 40	5 48	5 56	6 4	17
14	5 7	5 14	5 21	5 28	5 35	5 42	5 50	5 58	6 6	16
15	5 9	5 16	5 23	5 30	5 37	5 45	5 53	6 1	6 9	15
16	5 10	5 18	5 25	5 32	5 39	5 47	5 55	6 3	6 11	14
17	5 12	5 20	5 [illegible]	5 34	5 41	5 49	5 57	6 5	6 13	13
18	5 14	5 21	5 28	5 36	5 43	5 51	5 59	6 7	6 15	12
19	5 16	5 22	5 30	5 38	5 45	5 53	6 1	6 9	6 17	11
20	5 17	5 24	5 32	5 40	5 47	5 55	6 3	6 11	6 19	10
21	5 19	5 26	5 33	5 41	5 48	5 57	6 5	6 13	6 21	9
22	5 20	5 27	5 35	5 42	5 50	5 58	6 6	6 15	6 23	8
23	5 21	5 28	5 36	5 44	5 51	6 0	6 8	6 16	6 24	7
24	5 22	5 30	5 37	5 45	5 53	6 1	6 9	6 17	6 26	6
25	5 23	5 31	5 38	5 46	5 54	6 2	6 10	6 19	6 27	5
26	5 24	5 32	5 39	5 47	5 55	6 3	6 12	6 20	6 20	4
27	5 25	5 33	5 40	5 48	5 56	6 4	6 13	6 21	6 30	3
28	5 26	5 33	5 41	5 49	5 57	6 5	6 14	6 22	6 31	2
29	5 27	5 34	5 42	5 50	5 58	6 6	6 15	6 23	6 32	1
30	5 27	5 35	5 43	5 51	5 59	6 7	6 15	6 24	6 32	0

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 9.

Parallaxis Orbis Annui in ♄ Addenda.

Anomalia Orbis Sig. 3.

Grad.	898000 gr.	′	899000 gr.	′	900000 gr.	′	901000 gr.	′	902000 gr.	′	903000 gr.	′	904000 gr.	′	905000 gr.	′	906000 gr.	′	Grad.
	Numerus Logarithmicus.																		
0	5	27	5	35	5	43	5	51	5	59	6	7	6	15	6	24	6	33	30
1	5	27	5	35	5	43	5	51	5	59	6	7	6	16	6	25	6	34	29
2	5	28	5	36	5	44	5	52	6	0	6	8	6	17	6	25	6	34	28
3	5	28	5	36	5	44	5	52	6	0	6	8	6	17	6	26	6	35	27
4	5	29	5	36	5	44	5	52	6	0	6	9	6	17	6	26	6	35	26
5	5	29	5	37	5	44	5	52	6	1	6	9	6	18	6	26	6	35	25
6	5	29	5	37	5	44	5	52	6	1	6	9	6	18	6	27	6	35	24
7	5	29	5	37	5	44	5	52	6	1	6	9	6	18	6	27	6	35	23
8	5	28	5	36	5	44	5	52	6	0	6	9	6	18	6	27	6	35	22
9	5	28	5	36	5	44	5	52	6	0	6	9	6	17	6	26	6	35	21
10	5	28	5	36	5	43	5	51	6	0	6	8	6	17	6	26	6	35	20
11	5	27	5	35	5	43	5	51	5	59	6	8	6	16	6	25	6	34	19
12	5	27	5	34	5	42	5	51	5	59	6	7	6	16	6	25	6	34	18
13	5	26	5	34	5	42	5	50	5	58	6	6	6	15	6	24	6	33	17
14	5	25	5	33	5	41	5	49	5	57	6	5	6	14	6	23	6	32	16
15	5	24	5	32	5	40	5	48	5	56	6	4	6	13	6	22	6	31	15
16	5	23	5	31	5	39	5	47	5	55	6	3	6	12	6	21	6	30	14
17	5	22	5	30	5	38	5	46	5	54	6	2	6	11	6	20	6	29	13
18	5	21	5	28	5	36	5	45	5	53	6	1	6	10	6	19	6	27	12
19	5	20	5	27	5	35	5	43	5	52	6	0	6	9	6	17	6	26	11
20	5	18	5	26	5	33	5	42	5	50	5	58	6	7	6	16	6	24	10
21	5	17	5	24	5	32	5	40	5	48	5	56	6	5	6	14	6	23	9
22	5	15	5	22	5	30	5	38	5	46	5	54	6	3	6	12	6	21	8
23	5	13	5	21	5	28	5	36	5	44	5	52	6	1	6	10	6	19	7
24	5	11	5	19	5	26	5	34	5	42	5	50	5	59	6	8	6	17	6
25	5	9	5	17	5	24	5	32	5	40	5	48	5	57	6	6	6	14	5
26	5	7	5	14	5	22	5	30	5	38	5	46	5	55	6	3	6	12	4
27	5	5	5	12	5	20	5	28	5	35	5	44	5	52	6	1	6	10	3
28	5	3	5	10	5	18	5	25	5	33	5	41	5	50	5	58	6	7	2
29	5	0	5	8	5	16	5	23	5	31	5	39	5	47	5	56	6	5	1
30	4	58	5	5	5	13	5	21	5	29	5	37	5	45	5	53	6	2	0

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 8.

Parallaxis Orbis Annui in ♄ Addenda.

Anomalia Orbis Sig. 4.

Grad.	Numerus Logarithmicus.									Grad.
	898000	899000	900000	901000	902000	903000	904000	905000	906000	
	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	
0	4 58	5 5	5 13	5 21	5 29	5 37	5 45	5 53	6 2	30
1	4 55	5 2	5 10	5 18	5 26	5 34	5 42	5 50	5 58	29
2	4 52	5 0	5 7	5 14	5 22	5 30	5 38	5 46	5 54	28
3	4 50	4 57	5 4	5 11	5 19	5 27	5 35	5 42	5 50	27
4	4 47	4 54	5 1	5 8	5 16	5 24	5 32	5 39	5 47	25
5	4 44	4 51	4 58	5 5	5 12	5 20	5 28	5 36	5 43	25
6	4 41	4 48	4 55	5 2	5 9	5 17	5 25	5 32	5 40	24
7	4 38	4 45	4 51	4 59	5 6	5 14	5 21	5 28	5 36	23
8	4 34	4 41	4 48	4 55	5 2	5 10	5 18	5 25	5 32	22
9	4 31	4 37	4 44	4 52	4 59	5 6	5 14	5 21	5 28	21
10	4 27	4 34	4 41	4 48	4 55	5 2	5 10	5 17	5 24	20
11	4 24	4 30	4 37	4 44	4 51	4 58	5 6	5 13	5 20	10
12	4 20	4 26	4 33	4 40	4 47	4 54	5 1	5 8	5 15	18
13	4 16	4 23	4 29	4 36	4 43	4 50	4 57	5 4	5 11	17
14	4 12	4 19	4 25	4 32	4 39	4 46	4 53	5 0	5 6	16
15	4 8	4 14	4 21	4 27	4 34	4 41	4 48	4 55	5 2	15
16	4 4	4 1	4 17	4 23	4 30	4 37	4 44	4 50	4 57	14
17	4 0	4 6	4 13	4 19	4 26	4 32	4 39	4 45	4 52	13
18	3 56	4 2	4 8	4 14	4 21	4 27	4 34	4 40	4 47	12
19	3 52	3 58	4 4	4 10	4 16	4 22	4 29	4 35	4 42	11
20	3 47	3 53	3 59	4 5	4 11	4 17	4 24	4 3	4 37	10
21	3 43	3 48	3 54	4 0	4 6	4 12	4 19	4 25	4 31	9
22	3 38	3 43	3 40	3 55	4 1	4 7	4 13	4 19	4 25	8
23	3 34	3 38	3 45	3 50	3 56	4 2	4 8	4 14	4 20	7
24	3 20	3 33	3 40	3 45	3 51	3 57	4 2	4 8	4 14	6
25	3 24	3 20	3 35	3 40	3 45	51	3 57	4 2	4 8	5
26	3 19	3 24	3 29	3 35	3 40	3 [illegible]	[illegible]	3 57	4 2	4
27	3 14	3 19	3 24	3 29	3 34	3 40	3 [illegible]	3 51	3 56	3
28	3 0	3 14	3 19	3 24	3 29	3 21	3 [illegible]	3 45	3 50	2
29	3 4	3 9	3 13	3 18	3 23	3 [illegible]	3 34	3 39	3 44	1
30	2 59	3 3	3 8	3 13	3 18	3 24	3 28	3 33	3 38	

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 7.

Parallaxis Orbis Annui in ♄ Addenda.

Anomalia Orbis Sig. 5.

Numerus Logarithmicus.

Grad.	898000	899000	900000	901000	902000	903000	904000	905000	905000	Grad.
	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	
0	2 59	3 3	3 8	3 13	3 18	3 23	3 28	3 33	3 38	30
1	2 53	2 58	3 3	3 7	3 12	3 17	3 22	3 27	3 32	29
2	2 48	2 52	2 57	3 1	3 6	3 11	3 16	3 21	2 26	28
3	2 43	2 47	2 51	2 56	2 0	3 5	3 9	3 14	3 19	27
4	2 37	2 41	2 45	2 50	2 54	2 58	3 3	3 8	3 13	26
5	2 31	2 36	2 40	2 44	2 48	2 52	2 56	3 1	3 6	25
6	2 26	2 30	2 34	2 38	2 42	2 46	2 50	2 54	2 59	24
7	2 21	2 24	2 28	2 32	2 30	2 40	2 43	2 47	2 52	23
8	2 15	2 18	2 22	2 25	2 29	2 33	2 37	2 41	2 45	22
9	2 9	2 12	2 16	2 19	2 23	2 27	2 30	2 34	2 38	21
10	2 3	2 6	2 10	2 13	2 16	2 20	2 24	2 27	2 31	20
11	1 57	2 0	2 4	2 7	2 10	2 13	2 17	2 20	2 24	19
12	1 51	1 54	1 57	2 0	2 3	2 7	2 10	2 13	2 17	18
13	1 45	1 48	1 51	1 54	1 57	2 0	2 3	2 6	2 9	17
14	1 40	1 42	1 45	1 47	1 50	1 53	1 56	1 59	2 2	16
15	1 34	1 36	1 38	1 41	1 43	1 46	1 49	1 52	1 55	15
16	1 27	1 29	1 32	1 34	1 37	1 39	1 42	1 45	1 47	14
17	1 21	1 23	1 26	1 28	1 30	1 32	1 35	1 37	1 40	13
18	1 15	1 17	1 19	1 21	1 23	1 25	1 28	1 30	1 32	12
19	1 9	1 11	1 13	1 15	1 17	1 18	1 20	1 22	1 25	11
20	1 3	1 4	1 6	1 8	1 10	1 12	1 13	1 15	1 17	10
21	0 57	0 58	1 0	1 1	1 3	1 4	1 6	1 8	1 9	9
22	0 50	0 52	0 53	0 54	0 56	0 57	0 59	1 0	1 2	8
23	0 44	0 45	0 46	0 48	0 49	0 50	0 52	0 53	0 54	7
24	0 38	0 39	0 40	0 41	0 42	0 43	0 44	0 45	0 46	6
25	0 32	0 33	0 33	0 34	0 35	0 36	0 37	0 38	0 39	5
26	0 25	0 26	0 27	0 27	0 28	0 29	0 29	0 30	0 31	4
27	0 19	0 19	0 20	0 20	0 21	0 22	0 22	0 23	0 23	3
28	0 13	0 13	0 13	0 13	0 14	0 14	0 15	0 15	0 16	2
29	0 6	0 7	0 7	0 7	0 7	0 7	0 7	0 8	0 8	1
30	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 6.

SATURNI *Maxima Latitudo Geocentrica.*

Anomalia	Numerus Logarithmicus.									Orbis.
	898000	899000	900000	901000	902000	903000	904000	905000	906000	
	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	
Sig. 0.	2 17	2 17	2 17	2 16	2 16	2 16	2 15	2 15	2 15	30
3	2 17	2 17	2 17	2 16	2 16	2 16	2 15	2 15	2 15	27
6	2 17	2 17	2 17	2 16	2 16	2 10	2 15	2 15	2 15	24
9	2 17	2 17	2 17	2 16	2 16	2 16	2 16	2 15	2 15	21
12	2 17	2 17	2 17	2 17	2 16	2 10	2 16	2 15	2 15	18
15	2 18	2 17	2 17	2 17	2 16	2 16	2 16	2 15	2 15	15
18	2 18	2 17	2 17	2 17	2 17	2 16	2 15	2 16	2 15	12
21	2 18	2 18	2 17	2 17	2 17	2 17	2 15	2 16	2 16	9
24	2 18	2 18	2 18	2 17	2 17	2 17	2 17	2 10	2 16	6
27	2 18	2 18	2 18	2 18	2 17	2 17	2 17	2 16	2 16	3
Sig. 1.	2 19	2 18	2 18	2 18	2 18	2 17	2 17	2 17	2 16	11 Sig.
3	2 19	2 19	2 18	2 18	2 18	2 18	2 17	2 17	2 17	27
6	2 19	2 19	2 19	2 19	2 18	2 18	2 18	2 17	2 17	24
9	2 20	2 19	2 19	2 19	2 19	2 18	2 18	2 18	2 18	21
12	2 20	2 20	2 20	2 10	2 19	2 10	2 19	2 18	2 18	18
15	2 21	2 20	2 20	2 20	2 20	2 10	2 19	2 19	2 19	15
18	2 21	2 21	2 21	2 20	2 20	2 20	2 20	2 10	2 19	12
21	2 21	2 21	2 21	2 21	2 21	2 20	2 20	2 20	2 20	9
24	2 22	2 22	2 22	2 21	2 21	2 21	2 21	2 20	2 2	6
27	2 22	2 22	2 22	2 22	2 22	2 21	2 21	2 21	2 21	3
Sig. 2.	2 23	2 23	2 23	2 22	2 22	2 22	2 22	2 22	2 21	10 Sig.
3	2 24	2 23	2 23	2 23	2 23	2 23	2 23	2 22	2 22	27
6	2 24	2 24	2 24	2 24	2 24	2 23	2 23	2 23	2 23	24
9	2 25	2 25	2 24	2 24	2 24	2 24	2 24	2 24	2 24	21
12	2 25	2 25	2 25	2 25	2 25	2 25	2 25	2 24	2 24	18
15	2 25	2 26	2 26	2 26	2 25	2 25	2 25	2 25	2 25	15
18	2 27	2 27	2 26	2 26	2 26	2 26	2 26	2 26	2 26	12
21	2 27	2 27	2 27	2 27	2 27	2 27	2 27	2 27	2 27	9
24	2 28	2 28	2 8	2 28	2 28	2 28	2 28	2 28	2 28	6
27	2 20	2 29	2 20	2 20	2 29	2 29	2 20	2 29	2 28	3
Sig. 3.	2 30	2 30	2 30	2 29	2 29	2 29	2 29	2 29	2 29	9 Sig.
Orbis.	Latitudo ♄ Maxima.									Anomalia

SATURNI Maxima Latitudo Geocentrica.

Numerus Logarithmicus.

Anomalia	898000		899000		900000		901000		902000		903000		904000		905000		906000		Orbis.
	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	
Sig. 3	2	30	2	30	2	30	2	20	2	29	2	29	2	29	2	29	2	29	9 Sig.
3	2	30	2	30	2	30	2	30	2	30	2	30	2	30	2	30	2	30	27
6	2	31	2	31	2	31	2	31	2	31	2	31	2	31	2	31	2	31	24
9	2	32	2	32	2	32	2	32	2	32	2	32	2	32	2	32	2	32	21
12	2	33	2	33	2	33	2	33	2	33	2	33	2	33	2	33	2	33	18
15	2	33	2	33	2	34	2	34	2	34	2	34	2	34	2	34	2	34	15
18	2	34	2	34	2	34	2	34	2	35	2	35	2	35	2	35	2	35	12
21	2	35	2	35	2	35	2	35	2	35	2	35	2	36	2	36	2	36	9
24	2	35	2	36	2	30	2	36	2	36	2	36	2	36	2	37	2	37	6
27	2	36	2	37	2	37	2	37	2	37	2	37	2	37	2	37	2	38	3
Sig. 4.	2	37	2	37	2	37	2	38	2	38	2	38	2	38	2	38	2	39	8 Sig.
3	2	38	2	38	2	38	2	38	2	39	2	39	2	39	2	39	2	39	27
6	2	39	2	39	2	39	2	39	2	40	2	40	2	40	2	40	2	40	24
9	2	39	2	40	2	40	2	40	2	40	2	41	2	41	2	41	2	41	21
12	2	40	2	40	2	41	2	41	2	41	2	41	2	42	2	42	2	42	18
15	2	41	2	41	2	41	2	42	2	42	2	42	2	42	2	43	2	43	15
18	2	41	2	42	2	42	2	42	2	42	2	43	2	43	2	43	2	44	12
21	2	42	2	42	2	43	2	43	2	43	2	43	2	44	2	44	2	44	9
24	2	43	2	43	2	43	2	43	2	44	2	44	2	44	2	45	2	45	6
27	2	43	2	43	2	44	2	44	2	44	2	45	2	45	2	45	2	46	3
Sig. 5.	2	44	2	44	2	44	2	45	2	45	2	45	2	46	2	46	2	46	7 Sig.
3	2	44	2	44	2	45	2	45	2	45	2	46	2	46	2	47	2	47	27
6	2	44	2	45	2	45	2	46	2	46	2	46	2	47	2	47	2	48	24
9	2	45	2	45	2	46	2	46	2	46	2	47	2	47	2	48	2	48	21
12	2	45	2	46	2	45	2	46	2	47	2	47	2	48	2	48	2	49	18
15	2	45	2	46	2	46	2	47	2	47	2	47	2	48	2	48	2	49	15
18	2	45	2	46	2	47	2	47	2	47	2	48	2	48	2	49	2	49	12
21	2	45	2	45	2	47	2	47	2	48	2	48	2	49	2	49	2	50	9
24	2	46	2	47	2	47	2	47	2	48	2	46	2	49	2	49	2	50	6
27	2	45	2	47	2	47	2	47	2	48	2	48	2	40	2	49	2	50	3
Sig. 6.	2	46	2	47	2	47	2	47	2	48	2	48	2	49	2	50	2	50	6 Sig.
Orbis.																			Anomalia

Latitudo ♄ Maxima.

CANONES

MEDIORUM MOTUUM

STELLÆ JOVIS.

EPOCHÆ, SEU RADICES

Mediorum Motuum Jovis computatæ.

A MUNDI ORIGINE.

		S. gr. ′ ″
Ad Meridiem præcedentem Kalendas Januarias.	Medii motus ♃ Aphelii Nodi Borei.	2 36 37 0 1 3 43 51 1 16 53 25

A NABONASSARO.

Ad meridiem diei præcedentis Menſ. Thoth ÆGYPTIORUM.	Medii motus ♃ Aphelii Nodi Borei.	3 3 27 35 2 15 17 58 1 28 27 23

A MORTE ALEXANDRI.

Ad Meridiem diei proximè præcedentis Menſ. Thoth. Ægyptiorum.	Medii motus ♃ Aphelii Nodi Borei.	1 28 31 42 2 24 46 11 1 29 59 13

A CHRISTO REDEMPTORE.

Ad meridiem ultimi Decembris poſt ejus Nativitatem.	Medii motus ♃ Aphelii Nodi Borei.	2 59 56 35 2 31 59 30 1 31 9 15

CANON SEXAGENARIUS MEDIORUM MOTUUM JOVIS.

In diebus, atque dierum Sexagenis & Scrupulis.

g.	1a	2a	3a					
S.	gr.	'	"	"'	iv.			
	S.	gr.	'	"	"'	iv.		
		S.	gr.	'	"	"'	iv.	
			S.	gr.	'	"	"'	iv.
0	0	4	59	15	55	17	37	5
0	0	9	58	31	50	35	14	10
0	0	14	57	47	45	52	51	15
0	0	19	57	3	41	10	28	20
0	0	24	56	19	36	28	5	25
0	0	29	55	35	31	45	42	30
0	0	34	54	51	27	3	19	35
0	0	39	54	7	22	20	56	40
0	0	44	53	23	17	38	33	45
0	0	49	52	39	12	56	10	50
0	0	54	51	55	8	13	47	55
0	0	59	51	11	3	31	25	0
0	1	4	50	26	58	49	2	5
0	1	9	49	42	54	6	39	10
0	1	14	48	58	49	24	16	15
0	1	19	48	14	44	41	53	20
0	1	24	47	30	39	59	30	25
0	1	29	46	46	35	17	7	30
0	1	34	46	2	30	34	44	35
0	1	39	45	18	25	52	21	40
0	1	44	44	34	21	9	58	45
0	1	49	43	50	16	27	35	50
0	1	54	43	6	11	45	12	55
0	1	59	42	22	7	2	50	0
0	2	4	41	38	2	20	27	5
0	2	9	40	53	57	38	4	10
0	2	14	40	9	52	55	41	15
0	2	19	39	25	48	13	18	20
0	2	24	38	41	43	30	55	25
0	2	29	37	57	38	48	32	30
gr.	'	"	"'	iv.				
'	"	"'	iv.					
"	"'	iv.						
"'	iv.							

Sexag.		1a	2a	3a					
gr.	S.	gr.	'	"	"'	iv.			
'		S.	gr.	'	"	"'	iv.		
"			S.	gr.	'	"	"'	iv.	
"'				S.	gr.	'	"	"'	iv.
31	0	2	34	37	13	34	6	9	35
32	0	2	39	36	29	29	23	46	40
33	0	2	44	35	45	24	41	23	45
34	0	2	49	35	1	19	50	0	50
35	0	2	54	34	17	15	16	37	55
36	0	2	59	33	33	10	34	15	0
37	0	3	4	32	49	5	51	52	5
38	0	3	9	32	5	1	9	29	10
39	0	3	14	31	20	56	27	6	15
40	0	3	19	30	36	51	44	43	20
41	0	3	24	29	52	47	2	20	25
42	0	3	29	29	8	42	19	57	30
43	0	3	34	28	24	37	37	34	35
44	0	3	39	27	40	32	55	11	40
45	0	3	44	20	56	28	12	48	45
46	0	3	49	26	12	23	30	25	50
47	0	3	54	25	28	18	48	2	55
48	0	3	59	24	44	14	5	40	0
49	0	4	4	24	0	9	23	17	5
50	0	4	9	23	16	4	40	54	10
51	0	4	14	22	31	59	58	31	15
52	0	4	19	21	47	55	16	8	20
53	0	4	24	21	3	50	33	45	25
54	0	4	29	20	19	45	51	22	30
55	0	4	34	19	35	41	8	59	35
56	0	4	39	18	51	26	26	36	40
57	0	4	44	18	7	31	44	13	45
58	0	4	49	17	23	27	1	50	50
59	0	4	54	10	39	22	19	27	55
60	0	4	59	15	55	17	37	5	0
'	gr.	'	"	"'	iv.				
"	'	"	"'	iv.					
"'	"	"'	iv.						
iv.	"'	iv.							

CANON SEXAGENARIVS MEDIORUM MOTVVM APHELII JOVIS.

In diebus, atque dierum Sexagenis & Scrupulis.

Sexag.		12	22	32					
gr.	S.	gr.	′	″	‴	iv.			
′		S.	gr.	′	″	‴	iv.		
″			S.	gr.	′	″	‴	iv.	
‴				S.	gr.	′	″	‴	iv.
1	0	0	0	0	13	13	2	23	24
2	0	0	0	0	26	26	4	46	48
3	0	0	0	b	39	39	7	10	12
4	0	0	0	0	52	52	9	33	36
5	0	0	0	1	6	5	11	57	0
6	0	0	0	1	19	18	14	20	24
7	0	0	0	1	32	31	16	43	48
8	0	0	0	1	45	44	19	7	12
9	0	0	0	1	58	57	21	30	36
10	0	0	0	2	12	10	23	54	0
11	0	0	0	2	25	23	26	17	24
12	0	0	0	2	38	36	28	40	48
13	0	0	0	2	51	49	31	4	12
14	0	0	0	3	5	2	33	27	36
15	0	0	0	3	18	15	35	51	0
16	0	0	0	3	31	28	38	14	24
17	0	0	0	3	44	41	40	37	48
18	0	0	0	3	57	54	43	1	12
19	0	0	0	4	11	7	45	24	36
20	0	0	0	4	24	20	47	48	0
21	0	0	0	4	37	33	50	11	24
22	0	0	0	4	50	46	52	34	48
23	0	0	0	5	3	59	54	58	12
24	0	0	0	5	17	12	57	21	36
25	0	0	0	5	30	25	59	45	0
26	0	0	0	5	43	39	2	8	24
27	0	0	0	5	56	52	4	31	48
28	0	0	0	6	10	5	6	55	12
29	0	0	0	6	23	18	9	18	36
30	0	0	0	6	36	31	11	42	0
′	gr.	′	″	‴	iv.				
″	′	″	‴	iv.					
‴	″	‴	iv.						
iv.	‴	iv.							

Sexag.		12	22	32					
gr.	S.	gr.	′	″	‴	iv.			
′		S.	gr.	′	″	‴	iv.		
″			S.	gr.	′	″	‴	iv.	
‴				S.	gr.	′	″	‴	iv.
31	0	0	0	6	49	44	14	5	24
32	0	0	0	7	2	57	16	28	48
33	0	0	0	7	16	10	18	52	12
34	0	0	0	7	29	23	21	15	36
35	0	0	0	7	42	36	23	39	0
36	0	0	0	7	55	49	26	2	24
37	0	0	0	8	9	2	28	25	48
38	0	0	0	8	22	15	30	49	12
39	0	0	0	8	35	28	33	12	36
40	0	0	0	8	48	41	35	36	0
41	0	0	0	9	1	54	37	59	24
42	0	0	0	9	15	7	40	22	48
43	0	0	0	9	28	20	42	46	12
44	0	0	0	9	41	33	45	0	36
45	0	0	0	9	54	46	47	33	0
46	0	0	0	10	7	59	49	56	24
47	0	0	0	10	21	12	52	19	48
48	0	0	0	10	34	25	54	43	12
49	0	0	0	10	47	38	57	6	36
50	0	0	0	11	0	51	59	20	0
51	0	0	0	11	14	5	1	53	24
52	0	0	0	11	27	18	4	16	48
53	0	0	0	11	40	31	6	40	12
54	0	0	0	11	53	44	0	3	36
55	0	0	0	12	6	57	11	27	0
56	0	0	0	12	20	10	13	50	24
57	0	0	0	12	33	23	16	13	48
58	0	0	0	12	45	36	18	37	12
59	0	0	0	12	59	49	21	0	36
60	0	0	0	13	13	2	23	24	0
′	gr.	′	″	‴	iv.				
″	′	″	‴	iv.					
‴	″	‴	iv.						
iv.	‴	iv.							

CANON SEXAGENARIUS MEDIORUM MOTUUM NODI BOREI JOVIS.

In diebus, atque dierum Sexagenis & Scrupulis.

xag.	12	22	32					
S.	gr.	′	″	‴	iv.			
	S.	gr.	′	″	‴	iv.		
		S.	gr.	′	″	‴	iv.	
			S.	gr.	′	″	‴	iv.
0	0	0	0	2	8	9	51	22
0	0	0	0	4	16	19	42	44
0	0	0	0	6	24	29	34	6
0	0	0	0	8	32	29	25	28
0	0	0	0	10	40	49	16	50
0	0	0	0	12	48	59	8	12
0	0	0	0	14	57	8	59	34
0	0	0	0	17	5	18	50	56
0	0	0	0	19	13	28	42	18
0	0	0	0	21	21	38	33	40
0	0	0	0	23	29	48	25	2
0	0	0	0	25	37	58	16	24
0	0	0	0	27	46	8	7	46
0	0	0	0	29	54	17	59	8
0	0	0	0	32	2	27	50	30
0	0	0	0	34	10	37	41	52
0	0	0	0	36	18	47	33	14
0	0	0	0	38	26	57	24	36
0	0	0	0	40	35	7	15	58
0	0	0	0	42	43	17	7	20
0	0	0	0	44	51	26	58	42
0	0	0	0	46	50	36	50	4
0	0	0	0	49	7	45	42	20
0	0	0	0	51	15	56	32	48
0	0	0	0	53	24	6	24	10
0	0	0	0	55	32	16	15	32
0	0	0	0	57	40	26	6	54
0	0	0	0	59	48	35	58	16
0	0	0	1	1	56	45	49	38
0	0	0	1	4	4	55	41	0
gr.	′	″	‴	iv.				
′	″	‴	iv.					
″	‴	iv.						
‴	iv.							

Sexag.		12	22	32					
gr.	S.	gr.	′	″	‴	iv.			
′		S.	gr.	′	″	‴	iv.		
″			S.	gr.	′	″	‴	iv.	
‴				S.	gr.	′	″	‴	iv.
31	0	0	0	1	6	13	5	32	22
32	0	0	0	1	8	21	15	23	44
33	0	0	0	1	10	29	25	15	6
34	0	0	0	1	12	37	35	6	28
35	0	0	0	1	14	45	44	57	50
36	0	0	0	1	16	53	54	49	12
37	0	0	0	1	19	2	4	40	34
28	0	0	0	1	21	10	14	31	56
39	0	0	0	1	23	18	24	23	18
40	0	0	0	1	25	26	34	14	40
41	0	0	0	1	27	34	44	6	2
42	0	0	0	1	29	42	53	57	24
43	0	0	0	1	31	51	3	48	46
44	0	0	0	1	33	59	13	40	8
45	0	0	0	1	36	7	23	31	30
46	0	0	0	1	38	15	33	22	52
47	0	0	0	1	40	23	43	14	14
48	0	0	0	1	42	31	53	5	36
49	0	0	0	1	44	40	2	56	58
50	0	0	0	1	46	48	12	48	20
51	0	0	0	1	48	56	22	39	42
52	0	0	0	1	51	4	32	21	4
53	0	0	0	1	53	12	42	22	26
54	0	0	0	1	55	20	52	13	48
55	0	0	0	1	57	29	2	5	10
56	0	0	0	1	59	37	11	56	32
57	0	0	0	2	1	45	21	47	54
58	0	0	0	2	3	53	31	30	16
59	0	0	0	2	6	1	41	30	38
60	0	0	0	2	8	9	51	22	0
′	gr.	′	″	‴	iv.				
″	′	″	‴	iv.					
‴	″	‴	iv.						
iv.	‴	iv.							

RADICES Mediorum Motuum JOVIS in Annis Julianis collectis, juxta formam vulgarem.

EPOCHÆ.		Longitudo ♃.				Aphelium ♃.				Nod. Boreus ♃.			
		S.	gr.	'	"	S.	gr.	'	"	S.	gr.	'	"
Mundi	1	5	6	37	0	2	3	43	51	2	16	53	25
Chriſti	1	5	29	56	35	5	1	59	30	3	1	9	15
	1601	5	10	41	11	6	7	45	7	3	6	56	0
	1621	1	17	56	44	6	8	11	56	3	7	0	20
	1641	9	25	12	18	6	8	38	45	3	7	4	42
	1661	6	2	27	51	6	9	5	34	3	7	9	0
	1681	2	9	43	25	6	9	32	24	3	7	13	21

Medii Motus JOVIS in Annis Julianis expanſis.

	1	1	0	20	32	0	0	1	20	0	0	0	13
	2	2	0	41	4	0	0	2	41	0	0	0	26
	3	3	1	1	36	0	0	4	1	0	0	0	39
B	4	4	1	27	7	0	0	5	22	0	0	0	52
	5	5	1	47	39	0	0	6	42	0	0	1	5
	6	6	2	8	10	0	0	8	2	0	0	1	18
	7	7	2	28	42	0	0	9	23	0	0	1	31
B	8	8	2	54	13	0	0	10	44	0	0	1	44
	9	9	3	14	45	0	0	12	4	0	0	1	57
	10	10	3	35	17	0	0	13	24	0	0	2	10
	11	11	3	55	49	0	0	14	45	0	0	2	23
B	12	0	4	21	20	0	0	16	5	0	0	2	36
	13	1	4	41	52	0	0	17	26	0	0	2	49
	14	2	5	2	24	0	0	18	46	0	0	3	2
	15	3	5	22	56	0	0	20	7	0	0	3	15
	16	4	5	48	27	0	0	21	27	0	0	3	28
	17	5	6	8	59	0	0	22	48	0	0	3	41
	18	6	6	29	31	0	0	24	8	0	0	3	54
	19	7	6	50	2	0	0	25	28	0	0	4	7
	20	8	7	15	34	0	0	26	49	0	0	4	20
	40	4	14	31	7	0	0	53	38	0	0	8	4
	60	0	21	46	40	0	1	20	27	0	0	13	0
	80	8	29	2	13	0	1	47	17	0	0	17	20
	100	5	6	17	47	0	2	14	6	0	0	21	40
	200	10	12	35	34	0	4	28	12	0	0	43	21
	300	3	18	53	22	0	6	42	18	0	1	5	1
	400	8	25	11	9	0	8	56	24	0	1	26	41
	500	2	1	28	56	0	11	10	30	0	1	48	22
	600	7	7	46	43	0	13	24	30	0	2	10	2
	700	0	14	4	31	0	15	38	42	0	2	31	42
	800	5	20	22	18	0	17	52	48	0	2	53	22
	900	10	26	40	5	0	20	6	54	0	3	15	3
	1000	4	2	57	52	0	22	21	0	0	3	36	43
	2000	8	5	55	45	1	14	42	1	0	7	13	27
	3000	0	8	53	3	2	7	3	1	0	10	50	10
	4000	4	11	51	30	2	29	24	2	0	14	26	53
	5000	8	14	49	22	3	21	45	2	0	18	3	36
	6000	0	17	47	14	4	14	6	3	0	21	40	19

Medii Motus JOVIS in Menſibus Anni communis.

MENSES.	Longitudo ♃. S.	gr.	′	″	Aphelium ♃. S.	gr.	′	″	Nod. Boreus ♃. S.	gr.	′	″
Ianuarius	0	0	0	0	0	0	0	0	0	0	0	0
Februarius	0	2	34	37	0	0	0	7	0	0	0	1
Martius	0	4	54	17	0	0	0	14	0	0	0	2
Aprilis	0	7	28	54	0	0	0	20	0	0	0	3
Maius	0	9	58	32	0	0	0	27	0	0	0	4
Iunius	0	12	33	9	0	0	0	34	0	0	0	5
Iulius	0	15	2	47	0	0	0	40	0	0	0	6
Auguſtus	0	17	37	24	0	0	0	47	0	0	0	7
September	0	20	12	2	0	0	0	54	0	0	0	8
October	0	22	41	40	0	0	1	0	0	0	0	9
November	0	25	16	17	0	0	1	7	0	0	0	10
December	0	27	45	55	0	0	1	13	0	0	0	11

Medii Motus JOVIS in Diebus, Horis, & Scrupulis.

Dies.	Longit. ♃. gr.	′	″	Aphel. ′	″	Nod. ′	″
1	0	4	59	0	0	0	0
2	0	9	59	0	0	0	0
3	0	14	58	0	0	0	0
4	0	19	57	0	1	0	0
5	0	24	56	0	1	0	0
6	0	29	56	0	1	0	0
7	0	34	55	0	1	0	0
8	0	39	54	0	1	0	0
9	0	44	53	0	2	0	0
10	0	49	53	0	2	0	0
11	0	54	52	0	2	0	0
12	0	59	51	0	2	0	0
13	1	4	50	0	2	0	0
14	1	9	50	0	3	0	0
15	1	14	49	0	3	0	0
16	1	19	48	0	3	0	0
17	1	24	48	0	3	0	1
18	1	29	47	0	4	0	1
19	1	34	46	0	4	0	1
20	1	39	45	0	4	0	1
21	1	44	45	0	4	0	1
22	1	49	44	0	4	0	1
23	1	54	43	0	5	0	1
24	1	59	42	0	5	0	1
25	2	4	42	0	5	0	1
26	2	9	41	0	5	0	1
27	2	14	40	0	6	0	1
28	2	19	39	0	6	0	1
29	2	24	39	0	6	0	1
30	2	29	38	0	6	0	1
31	2	34	37	0	7	0	1

Horæ ′	Long. ♃ ′	″
1	0	12
2	0	25
3	0	37
4	0	50
5	1	2
6	1	15
7	1	27
8	1	40
9	1	52
10	2	5
11	2	17
12	2	30
13	2	42
14	2	55
15	3	7
16	3	20
17	3	32
18	3	44
19	3	57
20	4	0
21	4	22
22	4	24
23	4	47
24	4	59
25	5	12
26	5	24
27	5	37
28	5	50
29	6	2
30	6	15
″	″	‴

′ ″	Long. ♃ ′	″
31	6	27
32	6	40
33	6	52
34	7	5
35	7	17
36	7	30
37	7	42
38	7	55
39	8	7
40	8	20
41	8	32
42	8	44
43	8	57
44	9	9
45	9	22
46	0	34
47	9	47
48	9	59
49	10	12
50	10	24
51	10	37
52	10	50
53	11	2
54	11	15
55	11	27
56	11	40
57	11	52
58	12	5
59	12	17
60	12	30
‴	″	‴

CANONES

PROSTHAPHÆRESIUM JOVIS
in Ellipſi.

ET

PARALLAXIUM ORBIS ANNUI IN ♃.

UNA CUM

MAXIMA ♃ LATITUDINE GEOCENTRICA.

Proſthaphæreſes ♃ *in Ellipſi.*

Grad.	Sig. o. Æquatio Subtr. gr. ′ ″	Logar.	Sig. 1. Æquatio Subtr. gr. ′ ″	Logar.	Sig. 2. Æquatio Subtr. gr. ′ ″	Logar.	Grad.
0	0 0 0	573764	2 37 9	573520	4 37 13	572831	30
1	0 5 27	573764	2 41 57	573504	4 40 12	572802	29
2	0 10 54	573763	2 46 43	573487	4 43 5	572773	28
3	0 16 21	573762	2 51 26	573470	4 45 55	572743	27
4	0 21 48	573760	2 56 4	573452	4 48 35	572712	26
5	0 27 14	573758	3 0 41	573434	4 51 14	572682	25
6	0 32 40	573755	3 5 15	573415	4 53 49	572651	24
7	0 38 5	573751	3 9 47	573396	4 56 19	572619	23
8	0 43 29	573747	3 14 15	573376	4 58 42	572588	22
9	0 48 53	573743	3 18 41	573356	5 1 1	572555	21
10	0 54 16	573737	3 23 3	573336	5 3 15	572524	20
11	0 59 39	573731	3 27 20	573315	5 5 23	572491	19
12	1 5 0	573725	3 31 34	573203	5 7 26	572458	18
13	1 10 21	573718	3 35 46	573271	5 9 24	572425	17
14	1 15 40	573711	3 39 54	573248	5 11 17	572392	16
15	1 20 57	573703	3 43 59	573225	5 13 4	572358	15
16	1 26 14	573695	3 47 59	573202	5 14 45	572325	14
17	1 31 30	573686	3 51 57	573178	5 16 21	572291	13
18	1 36 43	573676	3 55 51	573154	5 17 52	572256	12
19	1 41 56	573666	3 59 40	573129	5 19 17	572222	11
20	1 47 7	573655	4 3 27	573104	5 20 37	572188	10
21	1 52 16	573644	4 7 10	573079	5 21 50	572153	9
22	1 57 24	573632	4 10 47	573053	5 22 58	572118	8
23	2 2 30	573620	4 14 20	573026	5 24 0	572083	7
24	2 7 32	573607	4 17 48	573000	5 24 56	572048	6
25	2 12 33	573594	4 21 12	572973	5 25 46	572012	5
26	2 17 32	573580	4 24 32	572946	5 26 31	571997	4
27	2 22 29	573566	4 27 49	572918	5 27 9	571941	3
28	2 27 23	573551	4 31 1	572889	5 27 42	571905	2
29	2 32 17	573536	4 34 9	572861	5 28 10	571869	1
30	2 37 9	573520	4 37 13	572831	5 28 33	571832	0
	Adde.		Adde.		Adde.		
	Sig. 11.		Sig. 10.		Sig. 9.		

Proſthaphæreſes ♃ *in Ellipſi.*

Grad.	Sig. 3. Æquatio Subtr. gr. ′ ″	Sig. 3. Logar.	Sig. 4. Æquatio Subtr. gr. ′ ″	Sig. 4. Logar.	Sig. 5. Æquatio Subtr. gr. ′ ″	Sig. 5. Logar.	Grad.
0	5 28 33	571832	4 52 32	570760	2 52 31	569923	30
1	5 28 48	571796	4 49 47	570726	2 47 22	569903	29
2	5 28 57	571760	4 46 57	570692	2 42 9	569883	28
3	5 29 3	571724	4 44 1	570659	2 36 53	569864	27
4	5 28 59	571088	4 41 0	570627	2 31 34	569845	26
5	5 28 50	571652	4 37 53	570595	2 26 12	569827	25
6	5 28 36	571615	4 34 40	570503	2 20 46	569810	24
7	5 28 16	571579	4 31 21	570531	2 15 17	569794	23
8	5 27 50	571543	4 27 57	570500	2 9 45	569778	22
9	5 27 18	571506	4 24 27	570469	2 4 10	569763	21
10	5 26 40	571469	4 20 52	570439	1 58 32	569749	20
11	5 25 55	571433	4 17 12	570409	1 52 51	569735	19
12	5 25 5	571396	4 13 27	570379	1 47 9	569722	18
13	5 24 8	571359	4 9 37	570350	1 41 25	569709	17
14	5 23 5	571323	4 5 42	570321	1 35 40	569697	10
15	5 21 54	571287	4 1 43	570292	1 29 52	569686	15
16	5 20 39	571251	3 57 39	570264	1 24 1	569675	14
17	5 19 18	571215	3 53 20	570236	1 18 9	569665	13
18	5 17 51	571179	3 49 14	570209	1 12 15	569650	12
19	5 16 17	571142	3 44 54	570182	1 6 10	569648	11
20	5 14 37	571108	3 40 29	570156	1 0 31	569640	10
21	5 12 32	571072	3 36 0	570130	0 54 22	569633	9
22	5 11 2	571037	3 31 26	570104	0 48 23	569627	8
23	5 9 5	571002	2 26 49	570080	0 42 23	569621	7
24	5 7 1	570907	2 22 7	570050	0 36 21	569616	6
25	5 4 50	570932	3 17 21	570032	0 30 19	569612	5
26	5 2 34	570897	3 12 31	570000	0 24 16	569609	4
27	5 0 12	570863	3 7 37	569985	0 18 12	569607	3
28	4 57 44	570820	3 2 39	569965	0 12 8	569605	2
20	4 55 11	570794	2 57 27	569944	0 6 4	569604	1
30	4 52 32	570700	2 52 31	569923	0 0 0	569604	0
	Adde.		Adde.		Adde.		
	Sig. 8.		Sig. 7.		Sig. 6.		

CANON LATITUDINARIUS JOVIS.

Argumentum Latitudinis ♃ à ☊. Reduct. Subtr.

Grad.	Sig. 0. Sept. Aſc. Sig. 6. Merid. Aſc.				Sig. 1. Sept. Aſc. Sig. 7. Merid. Aſc.				Sig. 2. Sept. Aſc. Sig. 8. Merid. Aſc.				Grad.
	Inclinat.	Reduct.	Curtat.	Scr. Prop.	Inclinat.	Reduct.	Curtat.	Scr. Prop.	Inclinat.	Reduct.	Curtat.	Scr. Prop.	
	gr. ′ ″	′ ″	P	′ ″	gr. ′ ″	′ ″	P	′ ″	gr. ′ ″	′ ″	P	′ ″	
0	0 0 0	0 0	0	0 0	0 40 58	0 25	3	30 0	1 10 57	0 25	9	51 57	30
1	0 1 26	0 1	0	1 3	0 42 12	0 26	3	30 54	1 11 39	0 25	9	52 28	29
2	0 2 51	0 2	0	2 6	0 43 25	0 26	3	31 47	1 12 20	0 24	9	52 58	28
3	0 4 17	0 3	0	3 8	0 44 38	0 27	3	32 39	1 13 0	0 24	9	53 27	27
4	0 5 42	0 4	0	4 11	0 45 50	0 27	4	33 32	1 13 38	0 23	9	53 56	26
5	0 7 8	0 5	0	5 14	0 47 1	0 27	4	34 24	1 14 15	0 22	9	54 23	25
6	0 8 33	0 0	0	6 17	0 48 10	0 28	4	35 15	1 14 50	0 22	10	54 49	24
7	0 9 59	0 7	0	7 19	0 49 18	0 28	4	36 6	1 15 24	0 21	10	55 14	23
8	0 11 24	0 8	0	8 21	0 50 27	0 28	5	36 56	1 15 57	0 21	10	55 38	22
9	0 12 49	0 9	0	9 22	0 51 34	0 28	5	37 45	1 16 28	0 20	10	56 1	21
10	0 14 14	0 10	0	10 25	0 52 40	0 29	5	38 34	1 16 59	0 19	10	56 23	20
11	0 15 38	0 11	0	11 27	0 53 45	0 29	5	39 21	1 17 28	0 19	10	56 44	19
12	0 17 1	0 12	6	12 29	0 54 50	0 29	5	40 9	1 17 55	0 18	10	57 4	18
13	0 18 25	0 13	1	13 30	0 55 53	0 29	6	40 55	1 18 21	0 17	11	57 23	17
14	0 19 49	0 14	1	14 31	0 56 55	0 29	6	41 41	1 18 45	0 16	11	57 40	16
15	0 21 12	0 15	1	15 32	0 57 57	0 29	6	42 26	1 19 7	0 15	11	57 57	15
16	0 22 35	0 16	1	16 32	0 58 58	0 29	6	43 10	1 19 30	0 15	11	58 13	14
17	0 23 58	0 17	1	17 32	0 59 57	0 29	6	43 53	1 19 50	0 14	11	58 28	13
18	0 25 19	0 17	1	18 32	1 0 54	0 29	6	44 35	1 20 9	0 13	11	58 42	12
19	0 26 41	0 18	1	19 31	1 1 50	0 29	7	45 17	1 20 26	0 12	11	58 54	11
20	0 28 2	0 19	1	20 30	1 2 46	0 29	7	45 58	1 20 41	0 11	11	59 5	10
21	0 29 22	0 20	1	21 29	1 3 41	0 28	7	46 38	1 20 55	0 10	11	59 16	9
22	0 30 41	0 21	1	22 27	1 4 34	0 28	7	47 17	1 21 7	0 9	11	59 25	8
23	0 32 1	0 21	2	23 25	1 5 26	0 28	7	47 55	1 21 18	0 8	11	59 33	7
24	0 33 19	0 22	2	24 23	1 6 17	0 27	8	48 32	1 21 28	0 7	12	59 40	6
25	0 34 37	0 23	2	25 21	1 7 7	0 27	8	49 9	1 21 37	0 6	12	59 46	5
26	0 35 55	0 23	2	26 14	1 7 55	0 27	8	49 45	1 21 44	0 5	12	59 52	4
27	0 37 12	0 24	2	27 14	1 8 42	0 26	8	50 19	1 21 49	0 4	12	59 56	3
28	0 38 29	0 24	2	28 10	1 9 29	0 26	8	50 53	1 21 53	0 3	12	59 58	2
20	0 39 44	0 25	3	29 5	1 10 13	0 26	8	51 25	1 21 55	0 2	12	59 59	1
30	0 40 58	0 25	3	30 0	1 10 57	0 25	9	51 57	1 21 56	0 0	12	60 0	0
	Sig. 11. Merid. Deſc. Sig. 5. Sept. Deſc.				Sig. 10. Merid. Deſc. Sig. 4. Sept. Deſc.				Sig. 9. Merid. Deſc. Sig. 3. Sept. Deſc.				

Argumentum Latitudinis à ☊. Reductio Add.

Parallaxis Orbis Annui in ♃ Addenda.

Grad.	Anomalia Orbis Sig. o.																Grad.
	Numerus Logarithmicus.																
	925000		926000		927000		928000		929000		930000		931000		932000		
	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
1	0	9	0	9		10	0	10	0	10	0	10	0	10	0	10	29
2	0	8	0	19	0	19	0	19	0	19	0	2	0	2	0	21	28
3	0	27	0	28	0	29	0	29	0	29	0	30	0	31	0	31	27
4	0	30	0	37	0	38	0	38	0	39	0	40	0	41	0	42	26
5	0	45	0	46	0	47	0	48	0	49	0	50		51	0	52	25
6	0	54	0	55	0	56	0	57	0	59	1	0	1	1	1	2	24
7	1	3	1	4	1	6	1	7	1	8	1	10	1	11	1	12	23
8	1	12	1	13	1	15	1	16	1	18	1	19	1	21	1	23	22
9	1	21	1	23	1	25	1	26	1	28	1	29	1	31	1	33	21
10	1	30	1	32	1	34	1	36	1	38	1	39	1	41	1	43	20
11	1	39	1	41	1	43	1	45	1	47	1	49	1	51	1	54	10
12	1	48	1	50	1	52	1	55	1	57	1	59	2	1	2	4	18
13	1	57	1	59	2	2	2	4	2	7	2	9	2	12	2	14	17
14	2	6	2	8	2	11	2	13	2	16	2	19	2	22	2	24	16
15	2	15	2	17	2	20	2	23	2	26	2	29	2	32	2	35	15
16	2	24	2	26	2	29	2	32	2	35	2	39	2	42	2	45	14
17	2	33	2	35	2	38	2	42	2	45	2	48	2	52	2	55	13
18	2	41	2	44	2	48	2	51	2	55	2	58	3	1	3	5	12
19	2	50	2	53	2	57	2	0	3	4	3	8	3	11	3	15	11
20	2	59	3	2	3	6	3	10	3	13	3	17	3	21	3	25	10
21	3	8	3	11	2	14	3	19	3	23	3	27	3	31	3	35	9
22	3	16	3	[illegible]	3	24	3	28	3	32	3	37	3	41	3	45	8
23	3	25	3	29	3	33	3	37	3	42	3	46	3	50	3	55	7
24	3	34	3	38	3	42	3	46	3	51	3	50	4	0	4	5	6
25	3	42	3	47	3	51	3	55	4	0	4	4	4	[illegible]	4	15	5
26	3	51	3	55	4	0	4	5	4	10	4	15	4	19	4	24	4
27	4	0	4	4	4	9	4	14	4	19	4	24	4	29	4	34	3
28	4	8	4	12	4	18	4	23	4	28	4	33	4	38	4	44	2
29	4	16	4	21	4	2	4	31	4	37	4	42	4	48	4	54	1
30	4	24	4	30	4	35	4	40	4	46	4	52	4	57	5	3	0
	Parallaxis Orbis Subtrahenda.																
	Anomalia Orbis Sig. 11.																

Parallaxis Orbis Annui in ♃ Addenda.

Anomalia Orbis Sig. 1.

Numerus Logarithmicus.

Grad.	925000 gr. ′	926000 gr. ′	927000 gr. ′	928000 gr. ′	929000 gr. ′	930000 gr. ′	931000 gr. ′	932000 gr. ′	Grad.
0	4 24	4 30	4 35	4 41	4 46	4 52	4 57	5 3	30
1	4 33	4 38	4 44	4 49	4 55	5 1	5 7	5 13	29
2	4 41	4 47	4 52	4 58	5 4	5 10	5 16	5 22	28
3	4 49	4 55	5 1	5 7	5 13	5 19	5 26	5 32	27
4	4 57	5 3	5 9	5 16	5 22	5 28	5 35	5 41	26
5	5 5	5 12	5 18	5 24	5 30	5 37	5 44	5 50	25
6	5 13	5 20	5 26	5 32	5 39	5 46	5 53	6 0	24
7	4 21	5 28	5 24	5 41	5 48	5 55	6 2	6 9	23
8	5 29	5 36	5 42	5 49	5 56	6 4	6 11	6 18	22
0	5 37	5 44	5 51	5 58	6 5	6 12	6 20	6 27	21
10	5 45	5 52	5 59	6 6	6 13	6 21	6 28	6 36	20
11	5 52	6 0	6 7	6 14	6 22	6 29	6 37	6 45	10
12	6 0	6 7	6 15	6 22	6 30	6 38	6 46	6 54	18
13	6 7	6 15	6 23	6 30	6 38	6 45	6 54	7 3	17
14	6 15	6 22	6 30	6 38	6 46	6 55	7 3	7 11	16
15	6 22	6 30	6 38	6 46	6 54	7 3	7 11	7 20	15
16	6 30	6 38	6 46	6 54	7 2	7 11	7 20	7 29	14
17	6 37	6 45	6 53	7 2	7 10	7 19	7 28	7 37	13
18	6 44	6 52	7 1	7 9	7 18	7 27	7 36	7 45	12
19	6 51	7 0	7 8	7 17	7 26	7 35	7 44	7 54	11
20	6 58	7 7	7 16	7 25	7 34	7 43	7 52	8 2	10
21	7 5	7 14	7 23	7 32	7 41	7 51	8 0	8 10	9
22	7 12	7 21	7 30	7 39	7 40	7 58	8 8	8 18	8
23	7 19	7 28	7 37	7 46	7 56	8 6	8 16	8 26	7
24	7 25	7 34	7 44	7 54	8 3	8 13	8 23	8 34	6
25	7 32	7 41	7 51	8 1	8 11	8 21	8 31	8 41	5
26	7 38	7 [illegible]	7 57	8 8	8 18	8 28	8 38	8 49	4
27	7 [illegible]	7 54	8 4	8 14	8 25	8 35	8 46	8 56	3
28	7 51	8 1	8 10	8 21	8 31	8 42	8 53	9 4	2
29	7 57	8 7	8 17	8 27	8 38	8 49	9 0	9 11	1
30	8 3	8 13	8 23	8 34	8 45	8 56	9 7	9 18	0

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 10.

Parallaxis Orbis Annui in Addenda.

Anomalia Orbis Sig. 2.

Numerus Logarithmicus.

Grad.	925000 gr. ′	926000 gr. ′	927000 gr. ′	928000 gr. ′	929000 gr. ′	930000 gr. ′	931000 gr. ′	932000 gr. ′	Grad.
0	8 3	8 13	8 23	8 34	8 45	8 56	9 7	9 18	30
1	8 9	8 19	8 30	8 40	8 51	9 2	9 14	9 27	29
2	8 15	8 25	8 36	8 47	8 58	9 9	9 20	9 32	28
3	8 20	8 31	8 42	8 53	9 4	9 16	9 27	9 39	27
4	8 26	8 37	8 48	8 59	9 10	9 22	9 34	9 46	26
5	8 31	8 42	8 53	9 5	9 16	9 28	9 40	9 52	25
6	8 37	8 48	8 59	9 10	9 22	9 34	9 46	9 59	24
7	8 42	8 53	9 5	9 16	9 28	9 40	9 52	10 5	23
8	8 47	8 58	9 10	9 22	9 34	9 46	9 58	10 11	22
0	8 52	9 3	0 15	9 27	9 40	9 52	10 4	10 17	21
10	8 57	9 8	9 20	9 32	9 45	9 57	10 10	10 23	20
11	9 2	9 13	9 25	9 37	9 50	10 2	10 15	10 28	19
12	9 6	9 18	9 30	9 42	9 55	10 8	10 21	10 34	18
13	9 11	9 23	9 35	9 47	10 0	10 13	10 26	10 40	17
14	9 15	9 27	9 40	9 52	10 5	10 18	10 31	10 45	16
15	9 20	9 32	9 44	9 57	10 10	10 23	10 36	10 50	15
16	9 24	9 36	9 48	10 1	10 14	10 27	10 41	10 55	14
17	9 27	9 40	9 53	10 6	10 19	10 32	10 40	11 0	13
18	9 31	9 44	9 57	10 10	10 23	10 37	10 51	11 5	12
19	9 35	9 47	10 0	10 14	10 27	10 41	10 55	11 9	11
20	9 38	9 51	19 4	10 17	10 31	10 45	10 59	11 14	10
21	0 42	9 55	10 8	10 21	20 35	10 49	11 3	11 18	9
22	9 45	0 58	10 11	10 25	10 38	10 53	11 7	11 22	8
23	9 48	10 1	10 15	10 28	10 42	10 56	11 11	11 26	7
24	9 51	10 4	10 18	10 32	10 46	11 0	11 15	11 30	6
25	9 54	10 7	10 21	10 35	10 49	11 3	11 18	11 33	5
26	9 56	10 9	10 23	10 37	10 52	11 6	11 21	11 36	4
27	9 59	10 12	10 26	10 40	10 55	11 9	11 24	11 40	3
28	10 1	10 14	10 28	10 42	10 57	11 12	11 27	11 43	2
29	10 3	10 17	10 31	10 45	11 0	11 15	11 30	11 46	1
30	10 5	10 19	10 33	10 47	11 2	11 17	11 32	11 48	0

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 9.

Parallaxis Orbis Annui in ♃ Addenda.

Anomalia Orbis Sig. 3.

Grad.	925000 gr.	'	926000 gr.	'	927000 gr.	'	928000 gr.	'	929000 gr.	'	930000 gr.	'	931000 gr.	'	932000 gr.	'	Grad.
0	10	5	10	19	10	33	10	47	11	2	11	17	11	32	11	48	30
1	10	7	10	21	10	35	10	49	11	4	11	19	11	35	11	51	29
2	10	8	10	22	10	36	10	51	11	6	11	21	11	37	11	53	28
3	10	10	10	24	10	38	10	53	11	8	11	23	11	39	11	55	27
4	10	11	10	25	10	39	10	54	11	9	11	24	11	40	11	56	26
5	10	12	10	26	10	41	10	56	11	11	11	26	11	42	11	58	25
6	10	13	10	27	10	42	10	57	11	12	11	27	11	43	12	0	24
7	10	14	10	28	10	42	10	58	11	13	11	28	11	44	12	1	23
8	10	14	10	28	10	43	10	58	11	14	11	29	11	45	12	2	22
9	10	15	10	29	10	43	10	59	11	14	11	29	11	46	12	3	21
10	10	15	10	29	10	44	10	59	11	14	11	30	11	46	12	3	20
11	10	15	10	29	10	44	10	59	11	14	11	30	11	47	12	4	19
12	10	14	10	29	10	44	10	59	11	14	11	30	11	47	12	4	18
13	10	14	10	28	10	43	10	59	11	14	11	30	11	46	12	3	17
14	10	13	10	28	10	43	10	58	11	14	11	30	11	46	12	5	16
15	10	12	10	27	10	42	10	57	11	13	11	29	11	45	12	2	15
16	10	11	10	26	10	41	10	56	11	12	11	28	11	45	12	2	14
17	10	10	10	25	10	40	10	55	11	11	11	27	11	44	12	1	13
18	10	9	10	23	10	38	10	54	11	10	11	26	11	42	11	59	12
19	10	7	10	22	10	37	10	52	11	8	11	24	11	41	11	58	11
20	10	5	10	20	10	35	10	50	11	6	11	22	11	39	11	56	10
21	10	3	10	18	10	33	10	48	11	4	11	20	11	37	11	54	9
22	10	1	10	16	10	31	10	46	11	2	11	18	11	35	11	52	8
23	9	59	10	14	10	29	10	44	11	0	11	16	11	33	11	50	7
24	9	56	10	11	10	26	10	41	10	57	11	13	11	30	11	47	6
25	9	53	10	8	10	23	10	38	10	54	11	10	11	27	11	44	5
26	9	50	10	5	10	20	10	35	10	51	11	7	11	24	11	41	4
27	9	47	10	2	10	17	10	32	10	48	11	4	11	20	11	38	3
28	9	43	9	58	10	13	10	28	10	44	11	0	11	16	11	34	2
29	9	40	9	54	10	9	10	24	10	40	10	56	11	12	11	30	1
30	9	36	9	50	10	5	10	20	10	36	10	52	11	8	11	25	0

Numerus Logarithmicus.

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 8.

Parallaxis Orbis Annui in ♃ Addenda.

Anomalia Orbis Sig. 4.

Numerus Logarithmicus.

Grad.	925000	926000	927000	928000	929000	930000	931000	932000	Grad.
	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	
0	9 36	9 50	10 5	10 20	10 36	10 52	11 8	11 25	30
1	9 32	9 46	10 1	10 16	10 32	10 48	11 4	11 21	29
2	9 27	0 41	9 56	10 11	10 27	10 43	10 59	11 16	28
3	9 23	9 37	9 52	10 7	10 22	10 38	10 54	11 11	27
4	9 18	9 32	9 47	10 2	10 17	10 33	10 49	11 6	26
5	9 13	0 27	9 42	9 57	10 12	10 28	10 44	11 0	25
6	9 8	9 22	9 36	9 51	10 6	10 22	10 38	10 54	24
7	9 3	9 16	9 31	9 45	10 0	10 16	10 32	10 48	23
8	8 56	9 10	0 24	9 39	9 54	10 10	10 26	10 42	22
9	8 51	9 4	9 19	9 33	9 48	10 3	10 19	10 35	21
10	8 45	8 58	9 12	9 26	9 41	9 56	10 12	10 28	20
11	8 39	8 52	9 6	9 20	9 34	9 50	10 6	10 21	19
12	8 32	8 45	8 59	9 13	9 28	9 43	9 58	10 14	18
13	8 25	8 28	8 52	9 6	9 21	9 36	9 51	10 7	17
14	8 18	8 31	8 45	8 59	9 14	9 28	9 43	9 59	16
15	8 11	8 24	8 38	8 51	9 5	9 20	9 35	9 50	15
16	8 4	8 17	8 30	8 42	8 57	9 11	9 26	9 41	14
17	7 56	8 9	8 22	8 34	8 48	9 3	9 18	9 33	13
18	7 48	8 1	8 14	8 27	8 40	8 55	9 9	9 24	12
19	7 40	7 53	8 6	8 19	8 32	8 46	9 0	9 14	11
20	7 32	7 44	7 57	8 10	8 23	8 36	8 50	9 5	10
21	7 24	7 36	7 48	8 1	8 13	8 27	8 41	8 55	9
22	7 15	7 27	7 39	7 51	8 4	8 17	8 31	8 45	8
23	7 7	7 18	7 30	7 42	7 55	8 8	8 21	8 35	7
24	6 58	7 9	7 20	7 32	7 45	7 58	8 11	8 24	6
25	6 40	7 0	7 11	7 23	7 35	7 47	8 0	8 13	5
26	6 39	6 50	7 1	7 13	7 25	7 37	7 49	8 2	4
27	6 30	6 40	6 51	7 2	7 14	7 26	7 38	7 51	3
28	6 20	6 30	6 41	6 52	7 3	7 15	7 27	7 40	2
29	6 10	6 20	6 31	6 41	6 52	7 4	7 16	7 28	1
30	6 0	6 10	6 20	6 30	6 41	6 53	7 4	7 15	0

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 7.

Parallaxis Orbis Annui in ♃ Addenda.

Anomalia Orbis Sig. 5.

Numerus Logarithmicus.

Grad.	925000	926000	927000	928000	929000	930000	931000	932000	Grad.
	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	
0	6 0	6 10	6 20	6 31	6 41	6 52	7 4	7 16	30
1	5 50	5 59	6 9	6 19	6 30	6 41	6 52	7 4	29
2	5 39	5 49	5 58	6 8	6 18	6 29	6 40	6 51	28
3	5 29	5 38	5 47	5 57	6 7	6 17	6 28	6 39	27
4	5 18	5 27	5 36	5 45	5 55	6 5	6 15	6 26	26
5	5 7	5 16	5 25	5 34	5 43	5 53	6 3	6 13	25
6	4 56	5 4	5 13	5 22	5 31	5 40	5 50	6 0	24
7	4 45	4 53	5 1	5 10	5 19	5 28	5 37	5 47	23
8	4 34	4 41	4 49	4 58	5 6	5 15	5 23	5 33	22
9	4 23	4 30	4 37	4 45	4 53	5 1	5 10	5 19	21
10	4 11	4 18	4 25	4 32	4 40	4 48	4 56	5 5	20
11	3 59	4 6	4 13	4 20	4 27	4 34	4 42	4 51	19
12	3 47	3 53	4 0	4 7	4 14	4 21	4 28	4 36	18
13	3 35	3 41	3 48	3 54	4 1	4 7	4 14	4 22	17
14	3 23	3 29	3 35	3 41	3 47	3 53	4 0	4 7	16
15	3 10	3 16	3 22	3 28	3 34	3 40	3 46	3 53	15
10	2 58	3 3	3 9	3 14	3 20	3 26	3 31	3 38	14
17	2 46	2 51	2 56	3 1	3 6	3 11	3 17	3 23	13
18	2 32	2 38	2 43	2 47	2 52	2 57	3 2	3 7	12
19	2 22	2 26	2 30	2 34	2 38	2 43	2 47	2 52	11
20	2 9	2 12	2 16	2 20	2 24	2 28	2 32	2 37	10
21	1 56	1 59	2 3	2 7	2 10	2 14	2 17	2 22	9
22	1 43	1 46	1 49	1 52	1 55	2 59	2 2	2 6	8
23	1 31	1 33	1 36	1 38	1 41	1 44	1 47	1 51	7
24	1 18	1 20	1 22	1 24	1 27	1 29	1 32	1 35	6
25	1 5	1 7	1 9	1 11	1 13	1 15	1 17	1 19	5
26	0 52	0 54	0 55	0 56	0 58	1 0	1 1	1 3	4
27	0 39	0 40	0 41	0 43	0 44	0 45	0 46	0 47	3
28	0 26	0 27	0 27	0 28	0 29	0 30	0 31	0 32	2
29	0 13	0 13	0 14	0 14	0 14	0 15	0 15	0 16	1.
30	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 6.

JOVIS Maxima Latitudo Geocentrica.

Numerus Logarithmicus.

Anomalia	925000		926000		927000		928000		929000		930000		931000		932000		Anomalia
	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	
Sig. 0.	1	9	1	9	1	9	1	9	1	8	1	8	1	8	1	7	30
3	1	9	1	9	1	9	1	9	1	8	1	8	1	8	1	7	27
6	1	9	1	9	1	9	1	9	1	8	1	8	1	8	1	7	24
9	1	9	1	9	1	9	1	9	1	8	1	8	1	8	1	8	21
12	1	9	1	9	1	9	1	9	1	8	1	8	1	8	1	8	18
15	1	10	1	9	1	9	1	9	1	9	1	8	1	8	1	8	15
18	1	10	1	9	1	9	1	9	1	9	1	9	1	8	1	8	12
21	1	10	1	10	1	9	1	9	1	9	1	9	1	9	1	8	9
24	1	10	1	10	1	10	1	9	1	9	1	9	1	9	1	8	6
27	1	10	1	10	1	10	1	10	1	9	1	9	1	9	1	9	3
Sig. 1.	1	10	1	10	1	10	1	10	1	10	1	9	1	9	1	9	11 Sig.
3	1	11	1	11	1	10	1	10	1	10	1	10	1	9	1	9	27
6	1	11	1	11	1	11	1	10	1	10	1	10	1	10	1	9	24
9	1	11	1	11	1	11	1	11	1	10	1	10	1	10	1	10	21
12	1	12	1	11	1	11	1	11	1	11	1	11	1	10	1	10	18
15	1	12	1	12	1	12	1	11	1	11	1	11	1	11	1	10	15
18	1	12	1	12	1	12	1	12	1	12	1	11	1	11	1	11	12
21	1	13	1	13	1	12	1	12	1	12	1	12	1	12	1	11	9
24	1	13	1	13	1	13	1	13	1	12	1	12	1	12	1	12	6
27	1	14	1	14	1	13	1	13	1	13	1	13	1	13	1	12	3
Sig. 2.	1	14	1	14	1	14	1	14	1	13	1	13	1	13	1	13	10 Sig.
3	1	15	1	15	1	14	1	14	1	14	1	14	1	14	1	13	27
6	1	15	1	15	1	15	1	15	1	15	1	14	1	14	1	14	24
9	1	16	1	16	1	14	1	15	1	15	1	15	1	15	1	15	21
12	1	16	1	16	1	10	1	16	1	15	1	16	1	10	1	15	18
15	1	17	1	17	1	17	1	17	1	16	1	16	1	16	1	16	15
18	1	18	1	18	1	17	1	17	1	17	1	17	1	17	1	17	12
21	1	18	1	18	1	18	1	18	1	18	1	18	1	18	1	17	9
24	1	19	1	10	1	10	1	19	1	19	1	18	1	18	1	18	6
27	1	20	1	20	1	19	1	19	1	19	1	19	1	19	1	19	3
Sig. 3.	1	20	1	30	1	20	1	20	1	20	1	20	1	20	1	20	9 Sig.
Orbis.																	Orbis.

Latitudo ♃ Maxima.

JOVIS Maxima Latitudo Geocentrica.

Anomalia	Numerus Logarithmicus.								Anomalia
	925000	926000	927000	928000	929000	930000	931000	932000	
	gr. ′	gr. ′	gr ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	
Sig. 3	1 20	1 20	1 20	1 20	1 20	1 20	1 20	1 20	9 Sig.
3	1 21	1 21	1 21	1 21	1 21	1 21	1 21	1 21	27
6	1 22	1 22	1 22	1 22	1 22	1 22	1 22	1 22	24
9	1 23	1 23	1 23	1 23	1 23	1 23	1 23	1 23	21
12	1 23	1 23	1 23	1 23	1 23	1 23	1 23	1 23	18
15	1 24	1 24	1 24	1 24	1 24	1 24	1 24	1 24	15
18	1 25	1 25	1 25	1 25	1 25	1 25	1 25	1 25	12
21	1 26	1 26	1 25	1 26	1 26	1 26	1 26	1 26	9
24	1 27	1 27	1 27	1 27	1 27	1 27	1 27	1 27	6
27	1 28	1 28	1 28	1 28	1 28	1 28	1 28	1 28	3
Sig. 4.	1 28	1 28	1 29	1 29	1 29	1 20	1 29	1 29	8 Sig.
3	1 29	1 29	1 29	1 30	1 30	1 30	1 30	1 30	27
6	1 30	1 30	1 30	1 31	1 31	1 31	1 31	1 31	24
9	1 31	1 31	1 31	1 31	1 32	1 32	1 32	1 32	21
12	1 32	1 32	1 32	1 32	1 33	1 33	1 33	1 33	18
15	1 32	1 34	1 33	1 33	1 34	1 34	1 34	1 34	15
18	1 33	1 33	1 34	1 34	1 34	1 35	1 35	1 35	12
21	1 34	1 34	1 35	1 35	1 35	1 36	1 36	1 36	9
24	1 35	1 35	1 35	36	1 36	1 36	1 37	1 37	6
27	1 35	1 36	1 36	1 36	1 37	1 37	1 38	1 38	3
Sig. 5.	1 36	1 36	1 37	1 37	1 38	1 38	1 39	1 39	7 Sig.
3	1 37	1 37	1 37	1 38	1 38	1 39	1 39	1 40	27
6	1 37	1 38	1 38	1 38	1 39	1 39	1 40	1 40	24
9	1 38	1 38	1 38	1 39	1 39	1 40	1 40	1 41	21
12	1 38	1 39	1 39	1 40	1 40	1 41	1 41	1 41	18
15	1 38	1 39	1 39	1 40	1 40	1 41	1 42	1 42	15
18	1 39	1 39	1 40	1 40	1 41	1 41	1 42	1 42	12
21	1 39	1 40	1 40	1 41	1 41	1 42	1 42	1 43	9
24	1 30	1 40	1 40	1 41	1 41	1 42	1 42	1 43	6
27	1 39	1 40	1 40	1 41	1 41	1 42	1 43	1 43	3
Sig. 6.	1 39	1 40	1 41	1 41	1 41	1 42	1 43	1 43	6 Sig.
Orbis.	Latitudo ♃ Maxima.								Orbis.

CANONES
MEDIORUM MOTUUM
STELLÆ MARTIS.

EPOCHÆ, SEU RADICES
Mediorum Motuum MARTIS numeratæ.

A MUNDI EXORDIO.

		S.	gr.	′	″
Ad Meridiem antecedentem Kalendas Januarias.	Medii motus ♂	2	15	12	59
	Aphelii	0	35	38	31
	Nodi Borei.	5	39	30	7

A NABONASSARO.

Ad meridiem diei præcedentis Menſ. Thoth ÆGYPTIORUM.	Medii motus ♂	0	1	13	10
	Aphelii	1	48	27	7
	Nodi Borei.	0	18	17	31

AB ALEXANDRI OBITU.

Ad Meridiem diei antecedentis Menſ. Thoth. ÆGYPTIORUM.	Medii motus ♂	1	40	18	0
	Aphelii	1	50	1	39
	Nodi Borei.	0	23	25	28

A CHRISTO DEO.

Ad meridiem ultimi Decembris poſt ejus Nativitatem.	Medii motus ♂	0	40	11	40
	Aphelii	1	56	34	3
	Nodi Borei.	0	27	20	31

CANON SEXAGENARIUS MEDIORUM MOTUUM STELLÆ MARTIS.

In diebus, atque dierum Sexagenis & Scrupulis.

exag.	12	22	32					
S.	gr.	'	"	'''	iv.			
	S.	gr.	'	"	'''	iv.		
		S.	gr.	'	"	'''	iv.	
			S.	gr.	'	"	'''	iv.
0	0	31	26	39	7	57	13	40
0	1	2	53	18	15	54	27	20
0	1	34	19	57	23	51	41	0
0	2	5	46	36	31	48	54	40
0	2	37	13	15	39	46	8	20
0	3	8	39	54	47	43	22	0
0	3	40	6	33	55	40	35	40
0	4	11	33	13	3	37	49	20
0	4	42	59	52	11	35	3	0
0	5	14	26	31	19	32	16	40
0	5	45	53	10	27	29	30	20
0	6	17	19	49	35	26	44	0
0	6	48	46	28	43	23	57	40
0	7	20	13	7	51	21	11	20
0	7	51	39	46	59	18	25	0
0	8	23	6	26	7	15	38	40
0	8	54	33	5	15	12	52	20
0	9	25	59	44	23	10	6	0
0	9	57	20	23	31	7	19	40
0	10	28	53	2	39	4	33	20
0	11	0	19	41	47	1	47	0
0	11	31	46	20	54	59	0	40
0	12	3	13	0	2	56	14	20
0	12	24	39	39	10	53	28	0
0	13	0	6	18	18	50	41	40
0	13	37	32	57	26	47	55	20
0	14	8	59	36	34	45	9	0
0	14	40	26	15	42	42	22	40
0	15	11	52	54	50	39	36	20
0	15	43	19	33	58	36	50	0
gr.	'	"	'''	iv.				
'	"	'''	iv.					
"	'''	iv.						
'''	iv.							

Sexag.		12	22	32					
gr.	S.	gr.	'	"	'''	iv.			
'		S.	gr.	'	"	'''	iv.		
"			S.	gr.	'	"	'''	iv.	
'''				S.	gr.	'	"	'''	iv.
31	0	16	14	46	13	6	34	3	40
32	0	16	46	12	52	14	31	17	20
33	0	17	17	39	31	22	28	31	0
34	0	17	49	6	10	30	25	44	40
35	0	18	20	32	49	38	22	58	20
36	0	18	51	59	28	46	20	12	0
37	0	19	23	26	7	54	17	25	40
28	0	19	54	52	47	2	14	39	20
39	0	20	26	19	20	10	11	53	0
40	0	20	57	46	5	18	9	6	40
41	0	21	29	12	44	26	6	20	20
42	0	22	0	39	23	34	3	34	0
43	0	22	32	6	2	42	0	47	40
44	0	23	2	32	41	49	58	1	20
45	0	23	34	59	20	57	55	15	0
46	0	24	6	26	0	6	52	28	40
47	0	24	37	52	39	13	49	42	20
48	0	25	9	19	18	21	46	56	0
49	0	25	40	45	57	29	44	9	40
50	0	26	12	12	36	37	41	23	20
51	0	26	43	39	15	45	38	37	0
52	0	27	15	5	54	53	35	50	40
53	0	27	40	32	34	1	33	4	20
54	0	28	17	59	13	9	30	18	0
55	0	28	49	25	52	17	27	31	40
56	0	29	20	52	31	25	24	45	20
57	0	29	52	19	10	33	21	59	0
58	0	30	23	45	49	41	19	12	40
59	0	30	55	12	28	49	16	26	20
60	0	31	26	39	7	57	13	40	0
'	gr.	'	"	'''	iv.				
"	'	"	'''	iv.					
'''	"	'''	iv.						
iv.	'''	iv.							

CANON SEXAGENARIUS MEDIORUM MOTUUM APHELII MARTIS.

In diebus, atque dierum Sexagenis & Scrupulis.

Sexag.		1ª	2ª	3ª						Sexag.		1ª	2ª	3ª					
gr.	S.	gr.	'	"	'''	iv.				gr.	S.	gr.	'	"	'''	iv.			
'		S.	gr.	'	"	'''	iv.			'		S.	gr.	'	"	'''	iv.		
"			S.	gr.	'	"	'''	iv.		"			S.	gr.	'	"	'''	iv.	
'''				S.	gr.	'	"	'''	iv.	'''				S.	gr.	'	"	'''	iv.
1	0	0	0	0	11	58	8	37	27	31	0	0	0	6	11	2	27	20	57
2	0	0	0	0	23	56	17	14	54	32	0	0	0	6	23	0	35	48	24
3	0	0	0	0	35	54	25	52	21	33	0	0	0	6	34	58	44	35	51
4	0	0	0	0	47	52	34	29	48	34	0	0	0	6	46	56	53	13	18
5	0	0	0	0	59	50	43	7	15	35	0	0	0	6	58	55	1	50	45
6	0	0	0	1	11	48	51	44	42	36	0	0	0	7	10	53	10	28	12
7	0	0	0	1	23	47	0	22	9	37	0	0	0	7	22	51	19	5	39
8	0	0	0	1	35	45	8	59	36	38	0	0	0	7	34	49	27	43	6
9	0	0	0	1	47	43	17	37	3	39	0	0	0	7	46	47	36	20	33
10	0	0	0	1	59	41	26	14	30	40	0	0	0	7	58	45	44	58	0
11	0	0	0	2	11	39	34	51	57	41	0	0	0	8	10	43	53	35	27
12	0	0	0	2	23	37	43	29	24	42	0	0	0	8	22	42	2	12	54
13	0	0	0	2	35	35	52	6	51	43	0	0	0	8	34	40	10	50	21
14	0	0	0	2	47	34	0	44	18	44	0	0	0	8	46	38	10	27	48
15	0	0	0	2	59	32	9	21	45	45	0	0	0	8	58	36	28	5	15
16	0	0	0	3	11	30	17	59	12	46	0	0	0	9	10	34	36	12	42
17	0	0	0	3	23	28	20	36	39	47	0	0	0	9	22	32	45	20	9
18	0	0	0	3	35	26	25	14	6	48	0	0	0	9	34	30	53	57	36
19	0	0	0	3	47	24	43	51	33	49	0	0	0	9	46	29	2	35	3
20	0	0	0	3	59	22	52	20	0	50	0	0	0	0	58	27	11	12	30
21	0	0	0	4	11	21	1	6	27	51	0	0	0	10	10	25	19	49	57
22	0	0	0	4	23	19	9	43	54	52	0	0	0	10	22	22	28	27	24
23	0	0	0	4	35	17	18	21	21	53	0	0	0	10	34	21	37	4	51
24	0	0	0	4	47	15	26	58	48	54	0	0	0	10	46	19	45	42	18
25	0	0	0	4	59	13	35	36	15	55	0	0	0	10	58	17	54	19	45
26	0	0	0	5	11	11	44	13	42	56	0	0	0	11	10	16	2	57	12
27	0	0	0	5	23	9	52	51	9	57	0	0	0	11	22	14	11	34	39
28	0	0	0	5	35	8	1	28	36	58	0	0	0	11	34	12	20	12	6
29	0	0	0	5	47	6	10	6	3	59	0	0	0	11	46	10	28	49	33
30	0	0	0	5	59	4	18	43	30	60	0	0	0	11	58	8	37	27	0
'	gr.	'	"	'''	iv.					'	gr.	'	"	'''	iv.				
"	'	"	'''	iv.						"	'	"	'''	iv.					
'''	"	'''	iv.							'''	"	'''	iv.						
iv.	'''	iv.								iv.	'''	iv.							

CANON SEXAGENARIUS MEDIORUM MOTUUM NODI BOREI MARTIS.

In diebus, atque dierum Sexagenis & Scrupulis.

exag.	12	24	32					
S.	gr.	′	″	‴	iv.			
	S.	gr.	′	″	‴	iv.		
		S.	gr.	′	″	‴	iv.	
			S.	gr.	′	″	‴	iv.
0	0	0	0	7	9	51	4	48
0	0	0	0	14	19	42	0	36
0	0	0	0	21	29	33	14	24
0	0	0	0	28	39	24	19	12
0	0	0	0	35	49	15	24	0
0	0	0	0	42	59	6	28	48
0	0	0	0	50	8	57	33	36
0	0	0	0	57	18	48	38	24
0	0	0	1	4	28	39	43	12
0	0	0	1	11	38	30	48	0
0	0	0	1	18	48	21	52	48
0	0	0	1	25	58	12	57	36
0	0	0	1	33	8	4	2	24
0	0	0	1	40	17	55	7	12
0	0	0	1	47	27	46	12	0
0	0	0	1	54	37	37	16	48
0	0	0	2	1	47	28	21	36
0	0	0	2	8	57	19	26	24
0	0	0	2	16	7	10	31	12
0	0	0	2	22	17	1	35	0
0	0	0	2	30	27	52	40	48
0	0	0	2	37	36	43	45	36
	0	0	2	44	45	34	50	24
0	0	0	2	51	55	25	55	12
		0	2	59	6	17	0	0
0			3	6	16	8	4	48
0		0	3	13	25	59	9	36
0	0	0	3	20	35	50	14	24
0	0	0	3	27	45	41	19	12
0	0	0	3	34	55	32	24	0
gr.	′	″	‴	iv.				
′	″	‴	iv.					
″	‴	iv.						
‴	iv.							

Sexag.		12	24	32					
gr.	S.	gr.	′	″	‴	iv.			
′		S.	gr.	′	″	‴	iv.		
″			S.	gr.	′	″	‴	iv.	
‴				S.	gr.	′	″	‴	iv.
31	0	0	0	3	42	5	23	28	48
32	0	0	0	3	49	15	14	33	36
33	0	0	0	3	56	25	5	38	24
34	0	0	0	4	3	34	56	43	12
35	0	0	0	4	10	44	47	48	0
36	0	0	0	4	17	54	38	52	48
37	0	0	0	4	25	4	29	57	35
28	0	0	0	4	32	14	21	2	24
39	0	0	0	4	39	24	12	7	12
40	0	0	0	4	46	34	3	12	0
41	0	0	0	4	53	43	54	16	48
42	0	0	0	5	0	53	45	21	36
43	0	0	0	5	8	3	36	26	24
44	0	0	0	5	15	13	27	31	12
45	0	0	0	5	22	23	18	36	0
46	0	0	0	5	29	33	9	40	48
47	0	0	0	5	36	43	0	45	36
48	0	0	0	5	43	52	51	50	24
49	0	0	0	5	51	2	42	55	12
50	0	0	0	5	58	12	34	0	0
51	0	0	0	6	5	22	25	4	48
52	0	0	0	6	12	32	16	9	36
53	0	0	0	0	19	42	7	14	24
54	0	0	0	6	26	51	58	10	12
55	0	0	0	6	34	1	49	24	0
56	0	0	0	6	41	11	40	28	48
57	0	0	0	6	48	21	31	33	36
58	0	0	0	6	55	21	32	38	24
59	0	0	0	7	2	41	13	43	12
60	0	0		7	9	51	4	48	0
′	gr.	′	″	‴	iv.				
″	′	″	‴	iv.					
‴	″	‴	iv.						
iv.	‴	iv.							

RADICES Mediorum Motuum MARTIS in Annis Julianis collectis, juxta formam vulgarem.

EPOCHÆ.	Longitudo ♂. S.	gr.	′	″	Aphelium ♂. S.	gr.	′	″	Nod. Boreus ♂. S.	gr.	′	″
Mundi 1	4	16	12	59	1	6	38	32	11	9	30	7
Chriſti 1	1	10	11	40	3	26	34	3	0	27	29	31
1601	10	6	44	11	4	28	57	2	1	16	43	30
1621	5	25	4	6	4	29	21	10	1	16	58	2
1641	1	13	24	0	4	29	45	30	1	17	12	35
1661	9	1	43	54	5	0	9	53	1	17	27	7
1681	4	20	3	49	5	0	34	11	1	17	41	39

Medii Motus MARTIS in Annis Julianis expanſis.

	1	6	11	17	8	0	0	1	13	0	0	0	43
	2	0	22	34	16	0	0	2	26	0	0	1	27
	3	7	3	51	24	0	0	3	38	0	0	2	11
B	4	1	15	39	59	0	0	4	51	0	0	2	54
	5	7	26	57	7	0	0	6	4	0	0	3	38
	6	2	8	14	15	0	0	7	17	0	0	4	22
	7	8	19	31	23	0	0	8	30	0	0	5	5
B	8	3	1	19	58	0	0	9	43	0	0	5	49
	9	9	12	37	6	0	0	10	56	0	0	6	32
	10	3	23	54	14	0	0	12	9	0	0	7	16
	11	10	5	11	22	0	0	13	21	0	0	8	0
B	12	4	16	59	57	0	0	14	34	0	0	8	43
	13	10	28	17	5	0	0	15	47	0	0	9	27
	14	5	9	34	13	0	0	17	0	0	0	10	11
	15	11	20	51	21	0	0	18	13	0	0	10	54
B	16	6	2	39	56	0	0	19	26	0	0	11	38
	17	0	13	57	4	0	0	20	38	0	0	12	21
	18	6	25	14	12	0	0	21	51	0	0	13	5
	19	1	6	31	20	0	0	23	4	0	0	13	49
B	20	7	18	19	55	0	0	24	17	0	0	14	32
	40	3	6	39	49	0	0	48	34	0	0	29	4
	60	10	24	59	43	0	1	12	52	0	0	43	35
	80	6	13	19	37	0	1	37	9	0	0	58	8
	100	2	1	39	32	0	2	1	25	0	1	12	41
	200	4	3	19	4	0	4	2	52	0	2	25	22
	300	6	4	58	36	0	6	4	18	0	3	38	4
	400	8	6	38	8	0	8	5	45	0	4	50	45
	500	10	8	17	40	0	10	7	11	0	6	3	26
	600	0	9	57	12	0	12	8	37	0	7	16	7
	700	2	11	36	44	0	14	10	3	0	8	28	48
	800	4	13	16	16	0	16	11	29	0	9	41	30
	900	6	14	55	47	0	18	12	55	0	10	54	11
	1000	8	16	35	19	0	20	14	22	0	12	6	52
	2000	5	3	10	39	1	10	28	43	0	24	13	44
	3000	1	19	45	58	2	0	43	5	1	6	20	36
	4000	10	6	21	18	2	20	57	27	1	18	27	28
	5000	6	22	56	37	3	11	11	48	2	0	34	20
	6000	3	9	31	57	4	1	26	10	2	12	41	12

Medii Motus MARTIS in Menſibus Anni communis.

MENSES.	Longitudo ♂.				Aphelium ♂.				Nod. Boreus ♂.			
	S.	gr.	'	"	S.	gr.	'	"	S.	gr.	'	"
Januarius	0	0	0	0	0	0	0	6	0	0	0	0
Februarius	0	16	14	46	0	0	0	6	0	0	0	3
Martius	1	0	55	12	0	0	0	12	0	0	0	7
Aprilis	1	17	9	59	0	0	0	18	0	0	0	10
Maius	2	2	53	18	0	0	0	24	0	0	0	14
Junius	2	19	8	5	0	0	0	30	0	0	0	17
Julius	3	4	51	24	0	0	0	36	0	0	0	21
Auguſtus	3	21	6	10	0	0	0	42	0	0	0	25
September	4	7	20	57	0	0	0	48	0	0	0	28
October	4	23	4	16	0	0	0	54	0	0	0	32
November	5	9	19	2	0	0	1	1	0	0	0	36
December	5	25	2	22	0	0	1	7	0	0	0	39

Medii Motus MARTIS in Diebus, Horis, & Scrupulis.

Dies.	Longit. ♂.			Aphel.		Nod.	
	gr.	'	"	'	"	'	"
1	0	31	27	0	0	0	0
2	1	2	53	0	0	0	0
3	1	34	20	0	1	0	0
4	2	5	47	0	1	0	0
5	2	37	13	0	1	0	1
6	3	8	40	0	1	0	1
7	3	40	7	0	1	0	1
8	4	11	33	0	2	0	1
9	4	43	0	0	2	0	1
10	5	14	27	0	2	0	1
11	5	45	53	0	2	0	1
12	6	17	20	0	2	0	1
13	6	48	46	0	3	0	1
14	7	20	13	0	3	0	2
15	7	51	40	0	3	0	2
16	8	23	6	0	3	0	2
17	8	54	33	0	3	0	2
18	9	26	0	0	4	0	2
19	9	57	26	0	4	0	2
20	10	28	53	0	4	0	2
21	11	0	20	0	4	0	2
22	11	31	46	0	4	0	3
23	12	3	13	0	5	0	3
24	12	34	40	0	5	0	3
25	13	6	6	0	5	0	3
26	13	37	33	0	5	0	3
27	14	9	0	0	5	0	3
28	14	40	26	0	6	0	3
29	15	11	53	0	6	0	3
30	15	43	20	0	6	0	3
31	16	14	46	0	6	0	4

Horæ	Long. ♂		'	Long. ♂.		
'	'	"	"	gr.	'	"
1	1	19	31	0	40	37
2	2	37	32	0	41	55
3	3	56	33	0	43	14
4	5	14	34	0	44	32
5	6	33	35	0	45	51
6	7	52	36	0	47	9
7	9	10	37	0	48	28
8	10	29	38	0	49	47
9	11	47	39	0	51	5
10	13	6	40	0	52	24
11	14	25	41	0	53	43
12	15	43	42	0	55	1
13	17	2	43	0	56	20
14	18	20	44	0	57	38
15	19	39	45	0	58	57
16	20	58	46	1	0	15
17	22	16	47	1	1	34
18	23	35	48	1	2	53
19	24	53	49	1	4	12
20	26	12	50	1	5	30
21	27	31	51	1	6	49
22	28	49	52	1	8	7
23	30	8	53	1	9	25
24	31	26	54	1	10	44
25	32	45	55	1	12	3
26	34	4	56	1	13	22
27	35	22	57	1	14	40
28	36	41	58	1	15	59
29	38	0	59	1	17	17
30	39	18	60	1	18	36
"	'''	iv.	'''	'''	iv.	v.

CANONES

PROSTHAPHÆRESIUM MARTIS
in Ellipſi.

ET

PARALLAXIUM ORBIS ANNUI IN
MARTE,

ORBISQUE VENERIS IN TERRA:

UNA CUM

MARTIS Maximâ Latitudine Geocentricâ.

Proſthaphæreſes ♂ in Ellipſi.

Grad.	Sig. 0: Æquatio Subtr. gr. ′ ″	Sig. 0: Logar.	Sig. 1. Æquatio Subtr. gr. ′ ″	Sig. 1. Logar.	Sig. 2. Æquatio Subtr. gr. ′ ″	Sig. 2. Logar.	Grad.
0	0 0 0	522137	4 49 11	521717	8 39 17	520504	30
1	0 9 58	522136	4 58 9	521688	8 45 16	520452	29
2	0 19 56	522134	5 [illegible] 3	521659	8 51 7	520398	28
3	0 29 53	522132	5 15 52	521629	8 56 50	520344	27
4	0 39 50	522128	5 24 36	521599	9 2 25	520289	26
5	0 49 47	522124	5 33 16	521568	9 7 50	520234	25
6	0 59 44	522119	5 41 51	521536	9 13 7	520178	24
7	1 9 40	522114	5 50 21	5215[illegible]2	9 18 15	520121	23
8	1 19 34	522107	5 58 46	521467	9 23 15	520064	22
9	1 29 27	522099	6 7 6	521432	9 28 7	520006	21
10	1 39 19	522090	6 15 22	521395	9 32 51	519947	20
11	1 49 9	522080	6 23 33	5213[illegible]9	9 37 23	519887	19
12	1 58 59	522069	6 31 38	521321	9 41 47	519827	18
13	2 8 47	522057	6 39 38	5212[illegible]3	9 45 3	519766	17
14	2 18 33	522044	6 47 32	52124[illegible]	9 50 10	519705	16
15	2 28 10	522031	6 55 19	521204	9 54 7	519643	15
16	2 38 2	522017	7 3 1	5211[illegible]3	9 57 53	519581	14
17	2 47 42	522002	7 10 37	521121	10 1 31	519518	13
18	2 57 20	521985	7 18 7	5210[illegible]8	10 4 59	519455	12
19	3 6 55	521968	7 25 30	521034	10 8 16	519391	11
20	3 16 29	521949	7 32 47	520990	10 11 23	519326	10
21	3 25 59	521[illegible]	7 [illegible] 56	520[illegible]45	10 14 20	519261	9
22	3 35 27	521[illegible]	7 40 5	520899	10 17 7	51919[illegible]	8
23	3 44 52	521890	7 53 57	520852	10 19 44	51912[illegible]	7
24	3 54 13	521868	8 48	520805	10 22 11	519[illegible]4	6
25	4 3 32	521845	8 [illegible] 31	520757	10 24 26	518997	5
26	4 12 47	521821	8 14 7	520708	10 26 31	518930	4
27	4 21 59	521795	8 20 37	520658	10 28 24	518862	3
28	4 21 6	5217[illegible]1	8 26 59	520[illegible]8	10 30 8	518795	2
[illegible]	4 40 10	5[illegible]1745	8 33 12	520556	10 31 41	518727	1
30	4 49 11	52171[illegible]	8 39 17	520504	10 33 3	518659	0
	Addc.		Addc.		Addc.		
	Sig. 11.		Sig. 10.		Sig. 9.		

Proſthaphereſes ♂ in Ellipſi.

Grad.	Sig. 3. Æquatio Subtr. gr. ′ ″	Sig. 3. Logar.	Sig. 4. Æquatio Subtr. gr. ′ ″	Sig. 4. Logar.	Sig. 5. Æquatio Subtr. gr. ′ ″	Sig. 5. Logar.	Grad.
0	10 33 3	518659	9 42 40	516542	5 53 27	514772	30
1	10 34 14	518589	9 37 50	516473	5 43 9	514728	29
2	10 35 13	518520	9 32 48	516405	5 32 42	514684	28
3	10 36 2	518451	9 27 33	516337	5 22 6	514643	27
4	10 36 39	518381	9 22 6	516269	5 11 21	514603	26
5	10 37 6	518312	9 16 27	516202	5 0 20	514564	25
6	10 37 20	518241	9 10 35	516135	4 49 20	514527	24
7	10 37 20	518170	9 4 31	516071	4 38 22	514491	23
8	10 37 10	518100	8 58 16	516005	4 27 8	514456	22
9	10 36 40	518029	8 51 40	515941	4 15 47	514422	21
10	10 36 16	517957	8 45 10	515877	4 4 20	514389	20
11	10 35 30	517886	8 38 20	515814	3 52 46	514358	19
12	10 34 22	517815	8 31 18	515751	3 41 7	514329	18
13	10 33 24	517743	8 24 4	515688	3 29 22	514301	17
14	10 32 3	517672	8 16 38	515626	3 17 31	514274	16
15	10 30 30	517601	8 9 0	515566	3 5 35	514249	15
16	10 28 45	517530	8 1 11	515507	2 53 34	514226	14
17	10 26 48	517458	7 53 11	515448	2 41 29	514204	13
18	10 24 38	517387	7 45 0	515390	2 29 20	514184	12
19	10 22 16	517316	7 36 38	515333	2 17 8	514166	11
20	10 19 42	517244	7 28 6	515277	2 4 52	514149	10
21	10 15 56	517172	7 19 22	515221	1 52 32	514134	9
22	10 12 57	517101	7 10 30	515167	1 40 9	514120	8
23	10 10 45	517030	7 1 27	515114	1 27 43	514107	7
24	10 7 22	516960	6 52 13	515062	1 15 15	514096	6
25	10 3 46	516890	6 42 50	515011	1 2 45	514087	5
26	9 59 58	516820	6 33 16	514961	0 50 14	514080	4
27	9 55 57	516750	6 23 22	514912	0 37 41	514074	3
28	9 51 44	516681	6 13 20	514864	0 25 8	514070	2
29	9 47 18	516612	6 3 37	514818	0 12 34	514068	1
30	9 42 40	516542	5 53 27	514772	0 0 0	514067	0
	Adde.		Adde.		Adde.		
	Sig. 8.		Sig. 7.		Sig. 6.		

CANON LATITUDINARIUS MARTIS.

Anomalia Latitudinis à ☊. Reduct. Subtr.

Grad.	Sig. 0. Sept. Aſc. Sig. 6. Merid. Aſc. Inclinat. gr. ′ ″	Reduct. ′ ″	Curtat. P	Scr. Prop. ′ ″	Sig. 1. Sept. Aſc. Sig. 7. Merid. Aſc. Inclinat. gr. ′ ″	Reduct. ′ ″	Curtat. P	Scr. Prop. ′ ″	Sig. 2. Sept. Aſc. Sig. 8. Merid. Aſc. Inclinat. gr. ′ ″	Reduct. ′ ″	Curtat. P	Scr. Prop. ′ ″	Grad.
0	0 0 0	0 0	0	0 0	0 55 32	0 47	6	30 0	1 36 11	0 47	17	51 57	30
1	0 1 56	0 1	0	1 2	0 57 11	0 48	6	30 54	1 37 8	0 46	18	52 28	29
2	0 3 52	0 3	0	2 5	0 58 50	0 48	6	31 48	1 38 5	0 45	18	52 58	28
3	0 5 48	0 5	0	3 8	1 0 27	0 49	7	32 41	1 38 58	0 44	18	53 27	27
4	0 7 44	0 7	0	4 11	1 2 4	0 49	7	33 33	1 39 50	0 43	18	53 50	26
5	0 9 40	0 9	0	5 14	1 3 40	0 49	7	34 25	1 40 40	0 42	19	54 23	25
6	0 11 36	0 11	0	6 17	1 5 15	0 50	8	35 16	1 41 29	0 41	19	54 49	24
7	0 13 32	0 13	0	7 10	1 6 48	0 50	8	36 6	1 42 15	0 39	19	55 14	23
8	0 15 27	0 15	0	8 21	1 8 21	0 51	9	36 55	1 42 59	0 38	19	55 38	22
9	0 17 22	0 16	1	0 22	1 9 52	0 51	9	37 45	1 43 42	0 37	20	56 1	21
10	0 19 17	0 18	1	10 25	1 11 23	0 52	9	38 34	1 44 22	0 36	20	56 23	20
11	0 21 12	0 20	1	11 27	1 12 52	0 52	10	39 22	1 45 0	0 35	20	56 44	19
12	0 23 6	0 22	1	12 29	1 14 20	0 52	10	40 9	1 45 37	0 33	20	57 4	18
13	0 24 59	0 24	1	12 30	1 15 46	0 52	11	40 55	1 46 13	0 32	21	57 23	17
14	0 26 52	0 26	2	14 31	1 17 10	0 53	11	41 40	1 46 46	0 30	21	57 40	16
15	0 28 45	0 28	2	15 32	1 18 34	0 53	11	42 26	1 47 17	0 28	21	57 57	15
16	0 30 36	0 30	2	16 32	1 19 55	0 53	12	43 10	1 47 46	0 26	21	58 13	14
17	0 32 28	0 32	2	17 32	1 21 14	0 52	12	43 53	1 48 13	0 24	22	58 28	13
18	0 34 19	0 33	2	18 32	1 22 32	0 52	12	44 35	1 48 39	0 22	22	58 42	12
19	0 36 10	0 35	2	19 32	1 23 50	0 52	13	45 16	1 49 2	0 20	22	58 54	11
20	0 37 59	0 36	3	20 31	1 25 5	0 52	13	45 57	1 49 23	0 18	22	59 5	10
21	0 39 48	0 37	2	21 30	1 26 19	0 51	14	46 37	1 49 42	0 16	22	59 16	9
22	0 41 36	0 38	3	22 29	1 27 31	0 51	14	47 16	1 49 59	0 15	23	59 25	8
23	0 43 23	0 39	4	23 27	1 28 42	0 51	15	47 54	1 50 14	0 13	23	59 33	7
24	0 45 10	0 41	4	24 24	1 29 51	0 50	15	48 32	1 50 27	0 11	23	59 40	6
25	0 46 55	0 42	4	25 21	1 30 59	0 50	15	49 9	1 50 38	0 9	23	59 46	5
26	0 48 40	0 43	4	26 18	1 32 4	0 49	16	49 44	1 50 47	0 7	23	59 52	4
27	0 50 25	0 44	5	27 14	1 33 8	0 49	16	50 18	1 50 54	0 5	23	59 56	3
28	0 52 8	0 45	5	28 10	1 34 11	0 48	17	50 52	1 50 59	0 3	23	59 58	2
29	0 53 50	0 46	5	29 5	1 35 11	0 48	17	51 25	1 51 2	0 1	23	59 59	1
30	0 55 32	0 47	6	30 0	1 36 11	0 47	17	51 57	1 51 4	0 0	23	60 0	0
	Sig. 11. Merid. Deſc. Sig. 5. Sept. Deſc.				Sig. 10. Merid. Deſc. Sig. 4. Sept. Deſc.				Sig. 9. Merid. Deſc. Sig. 3. Sept. Deſc.				

Anomalia Latitudinis à ☋. Reductio Add.

PARALLAXIS ORBIS {Telluris in Marte / Veneris in Tellure} Addenda.

Anomalia Orbis Sig. 0.

Grad.	977000	978000	979000	980000	981000	982000	983000	984000	985000	986000	987000	Grad.
	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	
0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	30
1	0 22	0 22	0 23	0 23	0 23	0 24	0 24	0 24	0 25	0 25	0 26	29
2	0 44	0 45	0 45	0 46	0 47	0 48	0 48	0 49	0 50	0 50	0 51	28
3	1 7	1 8	1 9	1 10	1 11	1 12	1 13	1 14	1 15	1 16	1 17	27
4	1 29	1 30	1 32	1 33	1 34	1 35	1 37	1 38	1 39	1 41	1 42	26
5	1 51	1 52	1 54	1 56	1 57	1 59	2 1	2 2	2 4	2 6	2 8	25
6	2 13	2 15	2 17	2 19	2 21	2 23	2 25	2 27	2 29	2 31	2 33	24
7	2 35	2 37	2 40	2 42	2 44	2 47	2 49	2 51	2 54	2 56	2 59	23
8	2 58	3 0	3 3	3 6	3 8	3 11	3 14	3 16	3 19	3 21	3 24	22
9	3 20	3 22	3 26	3 29	3 31	3 35	3 38	3 40	3 44	3 47	3 50	21
10	3 42	3 45	3 49	3 52	3 55	3 59	4 2	4 5	4 9	4 12	4 15	20
11	4 4	4 7	4 11	4 15	4 18	4 22	4 26	4 29	4 33	4 37	4 41	19
12	4 26	4 30	4 34	4 38	4 42	4 46	4 50	4 54	4 58	5 2	5 6	18
13	4 48	4 52	4 57	5 1	5 5	5 9	5 14	5 18	5 23	5 27	5 32	17
14	5 11	5 15	5 20	5 25	5 29	5 33	5 38	5 43	5 48	5 52	5 57	16
15	5 33	5 38	5 43	5 48	5 52	5 57	6 2	6 7	6 12	6 17	6 23	15
16	5 55	6 0	6 5	6 11	6 16	6 21	6 27	6 32	6 37	6 42	6 48	14
17	6 17	6 22	6 28	6 34	6 39	6 45	6 51	6 56	7 2	7 7	7 14	13
18	6 39	6 45	6 51	6 57	7 2	7 9	7 15	7 21	7 27	7 33	7 39	12
19	7 1	7 7	7 13	7 19	7 26	7 32	7 39	7 45	7 51	7 58	8 5	11
20	7 23	7 30	7 36	7 43	7 50	7 56	8 3	8 9	8 16	8 22	8 29	10
21	7 45	7 52	7 59	8 6	8 13	8 20	8 27	8 34	8 41	8 48	8 55	9
22	8 7	8 14	8 21	8 29	8 36	8 43	8 51	8 58	9 6	9 14	9 21	8
23	8 29	8 37	8 44	8 52	9 0	9 7	9 14	9 22	9 30	9 38	9 46	7
24	8 51	8 59	9 7	9 15	9 23	9 31	9 39	9 47	9 55	10 3	10 11	6
25	9 13	9 21	9 29	9 38	9 46	9 54	10 2	10 11	10 19	10 28	10 37	5
26	9 35	9 43	9 52	10 1	10 9	10 18	10 27	10 35	10 44	10 53	11 2	4
27	9 57	10 6	10 15	10 24	10 33	10 41	10 50	11 0	11 9	11 18	11 28	3
28	10 18	10 28	10 37	10 47	10 56	11 5	11 14	11 24	11 33	11 43	11 53	2
29	10 40	10 50	10 59	11 9	11 19	11 28	11 38	11 48	11 58	12 8	12 18	1
30	11 2	11 12	11 22	11 32	11 42	11 52	12 2	12 13	12 23	12 33	12 43	0

Parallaxis Orbi Subtrahenda.

Anomalia Orbis Sig. 11.

PARALLAXIS ORBIS {Telluris in Marte / Veneris in Tellure} Addenda.

Anomalia Orbis Sig. 1.

Numerus Logarithmicus.

Grad.	977000	978000	979000	980000	981000	982000	983000	984000	985000	986000	987000	Grad.
	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	
0	11 2	11 12	11 22	11 32	11 42	11 52	12 2	12 12	12 23	12 33	12 43	30
1	11 24	11 34	11 45	11 55	12 5	12 15	12 26	12 37	12 47	12 58	13 8	29
2	11 45	11 56	12 7	12 17	12 28	12 39	12 50	13 1	13 12	13 23	13 34	28
3	12 7	12 18	12 29	12 40	12 51	13 2	13 13	13 25	13 36	13 47	13 59	27
4	12 29	12 40	12 51	13 2	13 14	13 26	13 37	13 48	14 0	14 12	14 24	26
5	12 51	13 2	13 14	13 25	13 37	13 49	14 0	14 13	14 25	14 37	14 49	25
6	13 12	13 24	13 36	13 48	14 0	14 12	14 24	14 36	14 49	15 2	15 14	24
7	13 33	13 45	13 58	14 10	14 23	14 35	14 48	15 1	15 13	15 26	15 39	23
8	13 54	14 7	14 20	14 33	14 46	14 59	15 12	15 25	15 38	15 51	16 4	22
0	14 16	14 29	14 42	14 55	15 8	15 22	15 35	15 49	16 2	16 15	16 29	21
10	14 37	14 51	14 4	15 17	15 31	15 45	15 59	16 12	16 26	16 40	16 54	20
11	14 58	15 12	15 26	15 40	15 54	16 8	16 22	16 36	16 51	17 5	17 19	19
12	15 20	15 34	15 48	16 2	16 16	16 31	16 45	17 0	17 14	17 29	17 44	18
13	15 41	15 55	16 10	16 24	16 30	16 54	17 9	17 24	17 39	17 54	18 9	17
14	16 2	16 17	16 32	16 47	17 2	17 17	17 32	17 48	18 3	18 18	18 34	16
15	16 23	19 38	16 53	17 9	17 24	17 40	17 55	18 11	18 27	18 43	18 59	15
16	19 44	17 0	17 15	17 31	17 47	18 3	18 19	18 35	18 51	19 7	19 23	14
17	17 5	17 21	17 37	17 52	18 9	18 25	18 42	18 58	19 15	19 31	19 48	13
18	17 26	17 42	17 58	18 14	18 31	18 48	19 5	19 22	19 39	19 56	20 13	12
19	17 46	18 2	18 19	18 35	18 53	19 11	19 28	19 45	20 3	20 20	20 38	11
20	18 7	18 24	18 41	18 58	19 16	19 33	19 51	20 9	20 26	20 44	21 2	10
21	18 28	18 45	19 2	19 20	19 38	19 56	20 14	20 32	20 50	21 8	21 27	9
22	18 48	19 6	19 24	19 42	20 0	20 18	20 37	20 55	21 14	21 32	21 51	8
23	19 9	19 27	19 45	20 4	20 22	20 41	21 0	21 19	21 37	21 57	22 16	7
24	19 29	19 48	20 7	20 25	20 44	21 3	21 23	21 42	22 1	22 20	22 40	6
25	19 49	20 9	20 28	20 47	21 6	21 26	21 45	22 5	22 24	22 45	23 5	5
26	20 10	20 29	20 49	21 8	21 28	21 48	22 8	22 28	22 48	23 8	23 20	4
27	20 30	20 50	21 10	21 30	21 50	22 10	22 30	22 51	23 11	23 32	23 53	3
28	20 50	21 10	21 31	21 51	22 12	22 32	22 53	23 14	23 35	23 56	24 17	2
29	21 10	21 31	21 51	22 12	22 33	22 54	23 15	23 37	23 58	24 20	24 42	1
30	21 30	21 51	22 12	22 33	22 55	23 16	23 38	24 0	24 22	24 44	25 6	0

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 10.

PARALLAXIS ORBIS {Telluris in Marte / Veneris in Tellure} Addenda.

Anomalia Orbis Sig. 2.

Numerus Logarithmicus.

Grad.	977000 gr.	′	978000 gr.	′	979000 gr.	′	980000 gr.	′	981000 gr.	′	982000 gr.	′	983000 gr.	′	984000 gr.	′	985000 gr.	′	986000 gr.	′	987000 gr.	′	Grad.
0	21	30	21	51	22	12	22	33	22	55	23	16	23	38	24	0	24	22	24	44	25	6	30
1	21	50	22	11	22	32	22	55	23	17	23	38	24	0	24	22	24	45	25	7	25	30	29
2	22	10	22	32	22	53	23	16	23	38	24	0	24	22	24	45	25	8	25	31	25	54	28
3	22	30	22	52	23	14	23	35	23	59	24	22	24	45	25	8	25	31	25	54	26	18	27
4	22	49	23	11	23	33	23	57	24	20	24	43	25	7	25	30	25	54	26	18	26	42	26
5	23	9	23	31	23	54	24	17	24	41	25	5	25	29	25	53	26	17	26	41	27	6	25
6	23	28	23	51	24	15	24	38	25	2	25	26	25	51	26	15	26	40	27	5	27	29	24
7	23	47	24	11	24	35	24	59	25	23	25	48	26	12	26	38	27	3	27	28	27	53	23
8	24	6	24	30	24	55	25	19	25	44	26	9	26	34	27	0	27	25	27	51	28	17	22
9	24	25	24	50	25	14	25	40	26	5	26	30	26	56	27	22	27	48	28	14	28	41	21
10	24	44	25	9	25	34	26	0	26	26	26	52	27	18	27	44	28	10	28	37	29	4	20
11	25	2	25	28	25	54	26	20	26	46	27	13	27	39	28	6	28	33	29	0	29	27	19
12	25	21	25	47	26	13	26	40	27	6	27	33	28	0	28	28	28	55	29	22	29	50	18
13	25	39	26	6	26	33	27	0	27	27	27	54	28	22	28	49	29	17	29	45	30	14	17
14	25	58	26	25	26	52	27	10	27	47	28	15	28	43	29	11	29	39	30	8	30	37	16
15	26	16	26	43	27	11	27	39	28	7	28	35	29	4	29	32	30	1	30	30	31	0	15
16	26	34	27	2	27	30	27	58	28	27	28	56	29	25	29	54	30	23	30	53	31	23	14
17	26	52	27	20	27	49	28	18	28	47	29	16	29	46	30	15	30	45	31	15	31	46	13
18	27	10	27	39	28	8	28	37	29	6	29	36	30	6	30	36	31	7	31	37	32	8	12
19	27	27	27	57	28	26	28	56	29	26	29	56	30	27	30	58	31	29	32	0	32	31	11
20	27	45	28	15	28	45	29	15	29	45	30	16	30	47	31	19	31	50	32	22	32	54	10
21	28	2	28	33	29	3	29	34	30	5	30	36	31	8	31	40	32	12	32	44	33	16	9
22	28	20	28	50	29	21	29	52	30	24	30	56	31	28	32	0	32	33	33	6	33	38	8
23	28	37	29	8	29	39	30	11	30	43	31	15	31	48	32	21	32	54	33	27	34	1	7
24	28	53	29	25	29	57	30	29	31	2	31	35	32	8	32	41	33	15	33	49	34	23	6
25	29	9	29	42	30	14	30	48	31	21	31	54	32	28	33	2	33	37	34	10	34	45	5
26	29	26	29	59	30	32	31	5	31	39	32	13	32	47	33	22	33	56	34	31	35	7	4
27	29	42	30	15	30	49	31	23	31	57	32	32	33	7	33	42	34	17	34	53	35	29	3
28	29	58	30	31	31	6	31	41	32	15	32	50	33	26	34	1	34	37	35	14	35	50	2
29	30	14	30	48	31	23	31	58	32	33	33	9	33	45	34	21	34	58	35	35	36	12	1
30	30	29	31	4	31	39	32	15	32	51	33	27	34	4	34	41	35	18	35	55	36	33	0

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 9.

PARALLAXIS ORBIS {Telluris in Marte / Veneris in Tellure} Addenda.

Anomalia Orbis Sig. 3.

Numerus Logarithmicus.

Grad.	977000		978000		979000		980000		981000		982000		983000		984000		985000		986000		987000		Grad.
	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	
0	30	20	31	4	31	39	32	15	32	51	33	27	34	4	34	41	35	18	35	55	36	33	30
1	30	45	31	20	31	56	32	32	33	9	33	45	34	23	35	0	35	38	36	16	36	54	29
2	31	0	31	36	32	12	32	49	33	25	34	4	34	42	35	19	35	57	36	36	37	15	28
3	31	15	31	51	32	28	33	5	33	43	34	21	35	0	35	38	36	17	36	56	37	36	27
4	31	29	32	7	32	44	33	22	34	0	34	38	35	17	35	57	36	36	37	16	37	57	26
5	31	44	32	22	32	59	33	38	34	17	34	56	35	35	36	15	36	56	37	36	38	17	25
6	31	58	32	36	33	14	33	54	34	33	35	13	35	53	36	34	37	15	37	56	38	38	24
7	32	12	32	50	33	29	34	9	34	49	35	30	36	11	36	52	37	34	38	16	38	58	23
8	32	25	33	4	33	44	34	24	35	5	35	46	36	28	37	10	37	52	38	35	39	18	22
9	32	39	33	19	33	59	34	40	35	21	36	3	36	45	37	28	38	11	38	54	39	38	21
10	32	52	33	32	34	12	34	55	35	36	36	19	37	2	37	45	38	29	39	13	39	57	20
11	33	5	33	46	34	27	35	0	35	52	36	35	37	19	38	3	38	47	39	32	40	17	19
12	33	17	33	59	34	41	35	23	36	6	36	50	37	35	38	20	39	4	39	50	40	36	18
13	33	29	34	11	34	54	35	37	36	21	37	6	37	51	38	36	39	22	40	8	40	55	17
14	33	40	34	23	35	7	35	51	36	35	37	21	38	6	38	53	39	39	40	26	41	14	16
15	33	52	34	36	35	20	36	4	36	49	37	35	38	22	39	9	39	50	40	44	41	33	15
16	34	3	34	48	35	32	36	17	37	3	37	50	38	37	39	25	40	13	41	2	41	51	14
17	34	14	34	59	35	44	36	30	37	16	38	4	38	52	39	40	40	29	41	19	42	9	13
18	34	24	35	10	35	55	36	42	37	29	38	18	39	6	39	55	40	45	41	35	42	27	12
19	34	34	35	21	36	6	36	54	37	42	38	31	39	20	40	10	41	1	41	52	42	44	11
20	34	43	35	31	36	17	37	6	37	54	38	44	39	34	40	25	41	16	42	8	43	1	10
21	34	52	35	40	36	28	37	17	38	6	38	57	39	48	40	39	41	31	42	24	43	18	9
22	35	1	35	49	36	38	37	28	38	18	39	9	40	1	40	53	41	46	42	40	43	35	8
23	35	10	35	58	36	47	37	38	38	25	39	21	40	14	41	7	42	1	42	56	43	51	7
24	35	16	36	6	36	56	37	47	38	39	39	32	40	26	41	20	42	15	43	11	44	7	6
25	35	23	36	14	37	5	37	57	38	49	39	43	40	38	41	33	42	29	43	26	44	23	5
26	35	30	36	21	37	13	38	6	38	59	39	54	40	49	41	45	42	42	43	40	44	38	4
27	35	36	36	28	37	20	38	14	39	8	40	5	41	0	41	57	42	55	43	54	44	53	3
28	35	42	36	34	37	27	38	22	39	17	40	13	41	10	42	8	43	7	44	7	45	7	2
29	35	47	36	40	37	34	38	29	39	24	40	22	41	20	42	19	43	19	44	20	45	21	1
30	35	51	36	45	37	40	38	30	39	32	40	31	41	30	42	29	43	30	44	32	45	34	0

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 8.

PARALLAXIS ORBIS {Telluris in Marte / Veneris in Tellure} Addenda.

Anomalia Orbis Sig. 4.

Numerus Logarithmicus.

Grad.	977000	978000	979000	980000	981000	982000	983000	984000	985000	986000	987000	Grad.
	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	
0	35 51	36 45	37 40	38 36	39 33	40 31	41 30	42 29	43 30	44 32	45 34	30
1	35 55	36 50	37 45	38 42	39 40	40 39	41 39	42 39	43 41	44 44	45 47	29
2	35 58	36 54	37 50	38 48	39 46	40 46	41 47	42 49	43 51	44 55	46 0	28
3	36 1	30 57	37 54	38 53	39 52	40 53	41 55	42 57	44 1	45 6	46 12	27
4	36 3	37 0	37 58	38 57	39 57	40 59	42 2	43 5	44 10	45 16	46 22	26
5	36 4	37 2	38 0	39 0	40 2	41 4	42 9	43 13	44 19	45 26	46 34	25
6	36 4	37 3	38 2	39 2	40 6	41 9	42 14	43 20	44 27	45 35	46 45	24
7	36 4	37 3	38 3	39 5	40 9	41 13	42 19	43 26	44 34	45 44	46 55	23
8	36 3	37 3	38 4	39 7	40 11	41 16	42 23	43 31	44 41	45 52	47 4	22
9	36 1	37 2	38 3	39 7	40 12	41 18	42 26	43 40	44 47	45 59	47 13	21
10	35 58	37 0	38 2	39 7	40 13	41 20	42 29	43 40	44 52	46 5	47 20	20
11	35 54	36 57	38 0	39 0	40 13	41 21	42 31	43 43	44 56	46 10	47 27	19
12	35 50	36 53	37 57	39 4	40 11	41 21	42 32	43 45	44 59	46 15	47 33	18
13	35 45	36 48	37 53	39 1	40 9	41 20	42 32	43 40	45 2	46 19	47 38	17
14	35 38	36 42	37 48	38 56	40 6	41 18	42 31	43 46	45 3	46 22	47 43	16
15	35 31	36 35	37 42	38 51	40 2	41 15	42 29	43 46	45 4	46 24	47 47	15
16	35 22	36 27	37 35	38 45	39 57	41 10	42 26	43 44	45 4	46 25	47 49	14
17	35 12	36 18	37 27	38 37	39 51	41 5	42 22	43 41	45 2	46 25	47 50	13
18	35 1	36 8	37 18	38 29	39 43	40 59	42 17	43 37	44 59	46 24	47 51	12
19	34 49	35 57	37 7	38 19	39 34	40 51	42 10	43 32	44 55	46 21	47 50	11
20	34 35	35 44	36 55	38 8	39 23	40 42	42 2	43 25	44 50	46 18	47 48	10
21	34 20	35 30	36 41	37 55	39 12	40 31	41 53	43 17	44 43	46 13	47 45	9
22	34 4	35 14	36 26	37 41	38 59	40 19	41 42	43 7	44 35	46 6	47 40	8
23	33 47	34 57	36 10	37 26	38 44	40 5	41 29	42 50	44 26	45 58	47 34	7
24	33 28	34 39	35 52	37 9	38 28	39 50	41 15	42 43	44 15	45 49	47 26	6
25	33 7	34 19	35 33	36 50	38 10	39 33	41 0	42 29	44 2	45 37	47 16	5
26	32 45	33 57	35 12	36 30	37 50	39 14	40 42	42 12	43 47	45 24	47 5	4
27	32 21	33 34	34 40	36 7	37 20	38 54	40 22	41 54	43 29	45 9	46 52	3
28	31 56	33 9	34 24	35 43	37 6	38 32	40 1	41 34	43 11	44 52	46 37	2
29	31 25	32 42	33 58	35 17	36 40	38 7	39 37	41 12	42 50	44 33	46 19	1
30	31 0	32 13	33 29	34 49	36 13	37 40	39 12	40 47	42 27	44 11	46 0	0

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 7.

PARALLAXIS ORBIS {Telluris in Marte / Veneris in Tellure} Addenda.

Anomalia Orbis Sig. 5.

Numerus Logarithmicus.

Grad.	977000		978000		979000		980000		981000		982000		983000		984000		985000		986000		987000		Grad.
	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	
0	31	0	32	13	33	29	34	40	36	13	37	40	39	12	40	47	42	27	44	11	46	0	30
1	30	20	31	4	32	59	34	19	35	43	37	11	38	44	40	20	42	2	43	47	45	37	29
2	29	56	31	0	32	26	33	46	35	11	36	40	38	13	39	51	41	33	43	21	45	13	28
3	29	21	30	34	31	51	33	12	34	37	36	6	37	40	39	19	41	2	42	51	44	45	27
4	28	4	29	57	31	14	32	35	34	0	35	29	37	4	38	44	40	28	42	19	44	14	26
5	28	5	29	18	30	34	31	55	33	26	34	50	36	25	38	6	39	51	41	43	43	40	25
6	27	24	28	36	29	52	31	13	32	28	34	8	35	43	37	21	39	11	41	4	43	3	24
7	26	40	27	52	29	7	30	28	31	53	33	23	34	58	36	40	38	27	40	21	42	22	23
8	25	55	27	5	28	20	29	40	31	4	32	34	34	10	35	52	37	40	39	34	41	37	22
0	25	7	26	16	27	30	28	49	30	13	31	43	33	18	35	0	36	48	38	44	40	47	21
10	24	16	25	25	26	38	27	56	29	19	30	48	32	23	34	4	35	53	37	49	39	53	20
11	23	23	24	31	25	42	26	59	28	21	29	49	31	23	33	4	34	53	36	49	38	54	10
12	22	28	23	34	24	44	25	59	27	20	28	47	30	20	32	0	33	48	35	45	37	50	18
13	21	30	22	34	23	43	24	57	26	16	27	41	29	13	30	52	32	39	34	35	36	40	17
14	20	30	21	32	22	39	23	51	25	8	26	31	28	1	29	39	31	25	33	20	35	25	16
15	19	28	20	28	21	32	22	41	23	57	25	18	26	46	28	21	30	6	31	59	34	3	15
16	18	23	19	20	20	22	21	29	22	42	24	0	25	26	26	59	28	41	30	32	32	34	14
17	17	16	18	10	19	10	20	14	21	23	22	39	24	1	25	32	27	10	28	59	30	59	13
18	16	6	16	58	17	54	18	55	20	1	21	13	22	32	23	59	25	35	27	20	29	17	12
19	14	55	15	42	16	36	17	33	18	36	19	44	20	59	22	22	23	53	25	34	27	27	11
20	13	41	14	26	15	15	16	8	17	7	18	11	19	21	20	39	22	6	23	4	25	30	10
21	12	25	13	6	13	51	14	41	15	35	16	34	17	39	18	52	20	13	21	43	23	25	9
22	11	[illegible]	11	44	12	26	13	10	13	59	14	54	15	53	17	0	18	14	19	38	21	12	8
23	9	48	10	2[illegible]	10	58	11	38	12	21	13	10	14	4	15	4	16	11	17	27	18	43	7
24	8	27	8	56	9	28	10	2	10	41	11	43	12	10	13	3	14	2	15	9	16	26	6
25	7	5	7	29	7	57	8	25	8	58	9	34	10	14	10	50	11	40	12	47	13	53	5
26	5	41	5	1	5	21	6	46	7	13	7	42	8	15	8	51	9	33	10	20	11	14	4
27	4	1[illegible]	4	3[illegible]	4	48	5	6	5	26	5	48	6	12	6	41	7	12	7	48	8	30	3
28	2	42	3	2	3	13	3	25	3	38	3	53	4	10	4	28	4	50	5	14	5	42	2
29	1	20	1	31	1	37	1	43	1	45	1	57	2	5	2	15	2	26	2	38	2	52	1
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 6.

MARTIS ♂

Maxima Latitudo Geocentrica.

Anomalia Orbis Sig. o.

Numerus Logarithmicus.

Grad.	977000	978000	979000	980000	981000	982000	983000	984000	985000	986000	987000	Grad.
	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	
0	1 10	1 9	1 9	1 8	1 8	1 7	1 6	1 6	1 5	1 4	1 3	30
1	1 10	1 9	1 9	1 8	1 8	1 7	1 6	1 6	1 5	1 4	1 3	29
2	1 10	1 9	1 9	1 8	1 8	1 7	1 6	1 6	1 5	1 4	1 3	28
3	1 10	1 9	1 9	1 8	1 8	1 7	1 6	1 6	1 5	1 4	1 3	27
4	1 10	1 9	1 9	1 8	1 8	1 7	1 6	1 6	1 5	1 4	1 4	26
5	1 10	1 9	1 9	1 8	1 8	1 7	1 6	1 6	1 5	1 4	1 4	25
6	1 10	1 9	1 9	1 8	1 8	1 7	1 6	1 6	1 5	1 4	1 4	24
7	1 10	1 9	1 9	1 8	1 8	1 7	1 6	1 6	1 5	1 4	1 4	23
8	1 10	1 9	1 9	1 8	1 8	1 7	1 6	1 6	1 5	1 4	1 4	22
9	1 10	1 9	1 9	1 8	1 8	1 7	1 6	1 6	1 5	1 4	1 4	21
10	1 10	1 9	1 9	1 8	1 8	1 7	1 6	1 6	1 5	1 4	1 4	20
11	1 10	1 9	1 9	1 8	1 8	1 7	1 6	1 6	1 5	1 5	1 4	19
12	1 10	1 10	1 9	1 8	1 8	1 7	1 6	1 6	1 5	1 5	1 4	18
13	1 10	1 10	1 9	1 8	1 8	1 7	1 7	1 6	1 5	1 5	1 4	17
14	1 10	1 10	1 9	1 8	1 8	1 7	1 7	1 6	1 5	1 5	1 4	16
15	1 10	1 10	1 9	1 9	1 8	1 7	1 7	1 6	1 6	1 5	1 4	15
16	1 10	1 10	1 9	1 9	1 8	1 7	1 7	1 6	1 6	1 5	1 4	14
17	1 11	1 10	1 9	1 9	1 8	1 7	1 7	1 6	1 6	1 5	1 4	13
18	1 11	1 10	1 9	1 9	1 8	1 7	1 7	1 6	1 6	1 5	1 4	12
19	1 11	1 10	1 10	1 9	1 8	1 7	1 7	1 6	1 6	1 5	1 4	11
20	1 11	1 10	1 10	1 9	1 8	1 8	1 7	1 6	1 6	1 5	1 5	10
21	1 11	1 10	1 10	1 9	1 9	1 8	1 7	1 7	1 6	1 5	1 5	9
22	1 11	1 10	1 10	1 9	1 9	1 8	1 7	1 7	1 6	1 5	1 5	8
23	1 11	1 10	1 10	1 9	1 9	1 8	1 7	1 7	1 6	1 5	1 5	7
24	1 11	1 10	1 10	1 9	1 9	1 8	1 8	1 7	1 6	1 6	1 5	6
25	1 11	1 11	1 10	1 9	1 9	1 8	1 8	1 7	1 6	1 6	1 5	5
26	1 11	1 11	1 10	1 10	1 9	1 8	1 8	1 7	1 7	1 6	1 5	4
27	1 12	1 11	1 10	1 10	1 9	1 9	1 8	1 7	1 7	1 6	1 5	3
28	1 12	1 11	1 11	1 10	1 9	1 9	1 8	1 7	1 7	1 6	1 6	2
29	1 12	1 11	1 11	1 10	1 10	1 9	1 8	1 8	1 7	1 6	1 6	1
30	1 12	1 11	1 11	1 10	1 10	9	1 8	1 8	1 7	1 6	1 6	0

Anomalia Orbis Sig. 11.

MARTIS
Maxima Latitudo Geocentrica.

Anomalia Orbis Sig. 1.

Numerus Logarithmicus.

Grad.	977000	978000	979000	980000	981000	982000	983000	984000	985000	986000	987000	Grad.
	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	
0	1 12	1 11	1 11	1 10	1 10	1 9	1 8	1 8	1 7	1 6	1 6	30
1	1 12	1 11	1 11	1 10	1 10	1 9	1 8	1 8	1 7	1 7	1 6	29
2	1 12	1 12	1 11	1 11	1 10	1 9	1 9	1 8	1 7	1 7	1 6	28
3	1 13	1 12	1 11	1 11	1 10	1 9	1 9	1 8	1 8	1 7	1 6	27
4	1 13	1 12	1 11	1 11	1 10	1 10	1 9	1 8	1 8	1 7	1 6	26
5	1 13	1 12	1 12	1 11	1 10	1 10	1 9	1 8	1 8	1 7	1 7	25
6	1 13	1 12	1 12	1 11	1 11	1 10	1 9	1 9	1 8	1 7	1 7	24
7	1 13	1 12	1 12	1 11	1 11	1 10	1 9	1 9	1 8	1 8	1 7	23
8	1 13	1 13	1 12	1 12	1 11	1 10	1 10	1 9	1 8	1 8	1 7	22
9	1 14	1 13	1 12	1 12	1 11	1 11	1 10	1 9	1 9	1 8	1 7	21
10	1 14	1 13	1 13	1 13	1 11	1 11	1 10	1 9	1 9	1 8	1 8	20
11	1 14	1 13	1 13	1 12	1 12	1 11	1 10	1 10	1 9	1 8	1 8	19
12	1 14	1 14	1 13	1 12	1 12	1 11	1 11	1 10	1 9	1 9	1 8	18
13	1 15	1 14	1 13	1 13	1 12	1 11	1 11	1 10	1 10	1 9	1 8	17
14	1 15	1 14	1 14	1 13	1 12	1 12	1 11	1 10	1 10	1 9	1 8	16
15	1 15	1 14	1 14	1 13	1 13	1 12	1 11	1 11	1 10	1 9	1 9	15
16	1 15	1 15	1 14	1 13	1 13	1 12	1 12	1 11	1 10	1 10	1 9	14
17	1 16	1 15	1 14	1 14	1 13	1 12	1 12	1 11	1 11	1 10	1 9	13
18	1 16	1 15	1 15	1 14	1 13	1 13	1 12	1 11	1 11	1 10	1 9	12
19	1 16	1 15	1 15	1 14	1 14	1 13	1 12	1 12	1 11	1 10	1 10	11
20	1 17	1 16	1 15	1 15	1 14	1 13	1 13	1 12	1 11	1 11	1 10	10
21	1 17	1 16	1 15	1 15	1 14	1 14	1 13	1 12	1 12	1 11	1 10	9
22	1 17	1 16	1 16	1 15	1 14	1 14	1 13	1 13	1 12	1 11	1 11	8
23	1 17	1 17	1 16	1 15	1 15	1 14	1 13	1 13	1 12	1 12	1 11	7
24	1 18	1 17	1 16	1 16	1 15	1 14	1 14	1 13	1 13	1 12	1 11	6
25	1 18	1 17	1 17	1 16	1 15	1 15	1 14	1 13	1 13	1 12	1 11	5
26	1 18	1 18	1 17	1 16	1 16	1 15	1 14	1 14	1 13	1 12	1 12	4
27	1 19	1 18	1 17	1 17	1 16	1 15	1 15	1 14	1 13	1 13	1 12	3
28	1 19	1 18	1 18	1 17	1 16	1 16	1 15	1 14	1 14	1 13	1 12	2
29	1 19	1 19	1 18	1 17	1 17	1 16	1 15	1 15	1 14	1 13	1 13	1
30	1 20	1 19	1 18	1 18	1 17	1 16	1 16	1 15	1 14	1 14	1 13	0

Anomalia Orbis Sig. 10.

MARTIS
Maxima Latitudo Geocentrica.

Anomalia Orbis Sig. 2.

Numerus Logarithmicus.

Grad.	977000	978000	979000	980000	981000	982000	983000	984000	985000	986000	987000	Grad.
	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	
0	1 20	1 19	1 18	1 18	1 17	1 17	1 16	1 15	1 15	1 14	1 13	30
1	1 20	1 19	1 19	1 18	1 18	1 17	1 16	1 16	1 15	1 14	1 14	29
2	1 20	1 20	1 19	1 19	1 18	1 17	1 17	1 16	1 15	1 14	1 14	28
3	1 21	1 20	1 19	1 19	1 18	1 18	1 17	1 16	1 16	1 15	1 14	27
4	1 21	1 20	1 20	1 19	1 19	1 18	1 17	1 17	1 16	1 15	1 15	26
5	1 22	1 21	1 20	1 20	1 19	1 18	1 18	1 17	1 16	1 16	1 15	25
6	1 22	1 21	1 21	1 20	1 19	1 19	1 18	1 18	1 17	1 16	1 16	24
7	1 22	1 22	1 21	1 21	1 20	1 19	1 19	1 18	1 17	1 17	1 16	23
8	1 23	1 22	1 22	1 21	1 20	1 20	1 19	1 18	1 18	1 17	1 16	22
9	1 23	1 23	1 22	1 21	1 21	1 20	1 19	1 19	1 18	1 17	1 17	21
10	1 24	1 23	1 22	1 22	1 21	1 21	1 20	1 19	1 19	1 18	1 17	20
11	1 24	1 24	1 23	1 22	1 22	1 21	1 20	1 20	1 19	1 18	1 18	19
12	1 25	1 24	1 23	1 23	1 22	1 22	1 21	1 20	1 20	1 19	1 18	18
13	1 25	1 25	1 24	1 23	1 23	1 22	1 21	1 21	1 20	1 19	1 19	17
14	1 26	1 25	1 24	1 24	1 23	1 21	1 22	1 21	1 21	1 20	1 19	16
15	1 26	1 26	1 25	1 24	1 24	1 23	1 22	1 22	1 21	1 20	1 20	15
16	1 27	1 26	1 25	1 25	1 24	1 24	1 23	1 22	1 22	1 21	1 20	14
17	1 27	1 27	1 26	1 25	1 25	1 24	1 23	1 23	1 22	1 21	1 21	13
18	1 28	1 27	1 26	1 26	1 25	1 25	1 24	1 23	1 23	1 22	1 21	12
19	1 28	1 28	1 27	1 27	1 26	1 25	1 25	1 24	1 23	1 23	1 22	11
20	1 29	1 28	1 28	1 27	1 26	1 26	1 25	1 24	1 24	1 23	1 22	10
21	1 29	1 29	1 28	1 28	1 27	1 26	1 26	1 25	1 24	1 24	1 23	9
22	1 30	1 29	1 29	1 28	1 28	1 27	1 26	1 26	1 25	1 24	1 23	8
23	1 31	1 30	1 30	1 29	1 28	1 28	1 27	1 26	1 26	1 25	1 24	7
24	1 31	1 31	1 30	1 30	1 29	1 28	1 28	1 27	1 26	1 26	1 25	6
25	1 32	1 31	1 31	1 30	1 30	1 29	1 28	1 28	1 27	1 26	1 25	5
26	1 32	1 32	1 32	1 31	1 30	1 30	1 29	1 28	1 28	1 27	1 26	4
27	1 33	1 33	1 32	1 32	1 31	1 30	1 30	1 29	1 28	1 28	1 27	3
28	1 34	1 34	1 33	1 33	1 32	1 31	1 30	1 30	1 30	1 28	1 28	2
29	1 35	1 34	1 34	1 33	1 32	1 32	1 31	1 30	1 30	1 29	1 28	1
30	1 35	1 35	1 34	1 34	1 33	1 32	1 32	1 31	1 30	1 30	1 29	0

Anomalia Orbis Sig. 9.

MARTIS
Maxima Latitudo Geocentrica.

Anomalia Orbis Sig. 3.

Numerus Logarithmicus.

Grad.	977000	978000	979000	980000	981000	982000	983000	984000	985000	986000	987000	Grad.
	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	
0	1 26	1 25	1 34	1 34	1 33	1 32	1 32	1 31	1 30	1 30	1 29	30
1	1 36	1 30	1 35	1 34	1 34	1 33	1 33	1 32	1 31	1 30	1 30	29
2	1 37	1 36	1 36	1 35	1 35	1 34	1 33	1 33	1 32	1 31	1 31	28
3	1 38	1 [illegible]	1 37	1 36	1 35	1 35	1 34	1 33	1 33	1 32	1 31	27
4	1 38	1 38	1 37	1 37	1 36	1 36	1 35	1 34	1 34	1 33	1 32	26
5	1 39	1 39	1 38	1 38	1 37	1 36	1 36	1 35	1 34	1 34	1 33	25
6	1 40	1 40	1 39	1 38	1 38	1 37	1 37	1 36	1 35	1 35	1 34	24
7	1 41	1 41	1 40	1 39	1 39	1 38	1 38	1 37	1 36	1 35	1 35	23
8	1 42	1 41	1 41	1 40	1 40	1 39	1 38	1 38	1 37	1 36	1 36	22
9	1 43	1 42	1 42	1 4[illegible]	1 41	1 40	1 39	1 39	1 38	1 37	1 37	21
10	1 44	1 43	1 43	1 42	1 41	1 41	1 40	1 40	1 39	1 38	1 38	20
11	1 45	1 44	1 44	1 43	1 43	1 42	1 41	1 41	1 40	1 39	1 39	19
12	1 [illegible]	1 45	1 45	1 44	1 43	1 43	1 42	1 42	1 41	1 40	1 40	18
13	1 [illegible]	1 46	1 45	1 45	1 44	1 44	1 43	1 43	1 42	1 41	1 41	17
14	1 4[illegible]	1 47	1 47	1 46	1 45	1 45	1 44	1 44	1 43	1 42	1 42	16
15	1 49	1 48	1 48	1 47	1 47	1 46	1 45	1 45	1 44	1 43	1 43	15
16	1 5[illegible]	49	1 49	1 48	1 48	1 47	1 45	1 46	1 45	1 44	1 44	14
17	1 51	1 50	1 50	1 49	1 49	1 48	1 48	1 47	1 46	1 45	1 45	13
18	1 52	1 51	1 51	1 50	1 50	1 49	1 49	1 48	1 48	1 47	1 46	12
19	1 53	1 52	1 52	1 52	1 51	1 51	1 5	1 49	1 49	1 48	1 47	11
20	1 54	1 53	1 53	1 53	1 52	1 52	1 51	1 51	1 50	1 49	1 49	10
21	1 55	1 54	1 54	1 54	1 54	1 53	1 52	1 52	1 51	1 51	1 50	9
22	1 56	1 55	1 56	1 55	1 55	1 54	1 54	1 53	1 52	1 52	1 51	8
23	1 58	1 5[illegible]	1 57	1 5[illegible]	1 56	1 56	1 55	1 54	1 54	1 53	1 53	7
24	1 [illegible]	1 5[illegible]	1 58	1 58	1 57	1 57	1 56	1 56	1 55	1 55	1 54	6
25	2 0	1 59	2 0	1 59	1 59	1 58	1 58	1 57	1 57	1 56	1 55	5
26	2 [illegible]	2 1	2 1	2 1	2 0	2 0	1 59	1 59	1 58	1 58	1 57	4
27	2 3	2 3	2 2	2 2	2 2	2 1	2 1	2 0	2 0	1 59	1 58	3
28	2 4	2 4	2 4	2 4	2 3	2 3	2 2	2 2	2 1	2 1	2 0	2
29	2 6	2 6	2 5	2 5	2 5	2 4	2 4	2 3	2 3	2 2	2 2	1
30	2 7	2 7	2 7	2 7	2 6	2 6	2 5	2 5	2 4	2 4	2 3	0

Anomalia Orbis Sig. 8.

MARTIS
Maxima Latitudo Geocentrica.

Anomalia Orbis Sig. 4.

Numerus Logarithmicus.

Grad.	977000	978000	979000	980000	981000	982000	983000	984000	985000	986000	987000	Grad.
	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	
0	2 7	2 7	2 7	2 7	2 6	2 6	2 5	2 5	2 4	2 4	2 3	30
1	2 0	2 0	2 8	2 8	2 8	2 8	2 7	2 7	2 6	2 6	2 5	29
2	2 10	2 10	2 10	2 10	2 10	2 9	2 9	2 8	2 8	2 7	2 7	28
3	2 12	2 12	2 12	2 11	2 11	2 11	2 11	2 10	2 10	2 9	2 9	27
4	2 14	2 14	2 13	2 13	2 13	2 12	2 12	2 12	2 12	2 11	2 11	26
5	2 15	2 15	2 15	2 15	2 15	2 15	2 14	2 14	2 14	2 13	2 13	25
6	2 17	2 17	2 17	2 17	2 17	2 17	2 16	2 16	2 16	2 15	2 15	24
7	2 19	2 19	2 10	2 19	2 19	2 19	2 18	2 18	2 18	2 17	2 17	23
8	2 21	2 21	2 21	2 21	2 21	2 21	2 20	2 20	2 20	2 10	2 19	22
9	2 22	2 23	2 23	2 [illegible]	2 22	2 23	2 22	2 22	2 22	2 29	2 21	21
10	2 24	2 25	2 25	2 25	2 25	2 25	2 25	2 24	2 24	2 24	2 24	20
11	2 26	2 27	2 27	2 27	2 27	2 27	2 27	2 27	2 27	2 26	2 26	19
12	2 28	2 29	2 29	2 29	2 29	2 29	2 29	2 29	2 29	2 29	2 29	18
13	2 30	2 31	2 31	2 31	2 31	2 32	2 32	2 32	2 32	2 31	2 31	17
14	2 32	2 33	2 33	2 34	2 34	2 34	2 34	2 34	2 34	2 34	2 34	16
15	2 35	2 35	2 36	2 36	2 36	2 36	2 37	2 37	2 37	2 37	2 37	15
16	2 37	2 37	2 38	2 38	2 39	2 39	2 39	2 40	2 40	2 40	2 40	14
17	2 39	2 40	2 40	2 41	2 41	2 42	2 42	2 42	2 43	2 43	2 43	13
18	2 41	2 42	2 43	2 43	2 44	2 44	2 45	2 45	2 46	2 46	2 46	12
19	2 44	2 45	2 45	2 46	2 47	2 47	2 48	2 48	2 49	2 49	2 49	11
20	2 46	2 47	2 48	2 49	2 50	2 50	2 51	2 51	2 52	2 52	2 52	10
21	2 49	2 50	2 51	2 52	2 53	2 53	2 54	2 55	2 55	2 56	2 56	9
22	2 51	2 52	2 54	2 55	2 56	2 55	2 57	2 58	2 59	2 59	3 0	8
23	2 54	2 55	2 56	2 57	2 59	3 0	3 1	3 1	3 2	3 3	3 3	7
24	2 [illegible]	2 58	2 59	3 0	3 2	3 3	3 4	3 5	3 6	3 7	3 7	6
25	2 [illegible]	3 1	3 2	3 4	3 5	3 6	3 8	3 9	3 10	3 11	3 12	5
26	3 2	3 4	3 5	3 7	3 8	3 10	3 11	3 13	3 14	3 15	3 16	4
27	3 4	3 7	3 9	3 10	3 12	3 14	3 15	3 16	3 18	3 19	3 20	3
28	3 8	3 10	3 12	3 14	3 15	3 17	3 19	3 21	3 22	3 24	3 25	2
29	3 11	3 13	3 15	3 17	3 19	3 21	3 23	3 25	3 27	3 29	3 30	1
30	3 14	3 16	3 18	3 20	3 23	3 25	3 27	3 29	3 31	3 33	3 35	0

Anomalia Orbis Sig. 7.

MARTIS
Maxima Latitudo Geocentrica.

Anomalia Orbis Sig. 5.

Numerus Logarithmicus.

Grad.	977000	978000	979000	980000	981000	982000	983000	984000	985000	986000	987000	Grad.
	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	
0	3 14	3 16	3 18	3 21	3 23	3 25	3 27	3 29	3 31	3 33	3 35	30
1	3 17	3 19	3 22	3 24	3 27	3 29	3 32	3 34	3 36	3 38	3 40	29
2	3 20	3 23	3 25	3 28	3 31	3 34	3 36	3 39	3 41	3 44	3 46	28
3	3 23	3 26	3 29	3 32	3 35	3 38	3 41	3 44	3 46	3 49	3 52	27
4	3 26	3 30	3 33	3 36	3 39	3 42	3 45	3 49	3 52	3 55	3 58	26
5	3 30	3 33	3 36	3 40	3 43	3 47	3 50	3 54	3 57	4 1	4 4	25
6	3 33	3 37	3 40	3 44	3 48	3 51	3 55	3 59	4 2	4 7	4 11	24
7	3 36	3 40	3 44	3 48	3 52	3 56	4 0	4 5	4 9	4 13	4 18	23
8	3 40	3 44	3 48	3 52	3 56	4 1	4 6	4 10	4 15	4 20	4 25	22
9	3 43	3 47	3 52	3 56	4 1	4 6	4 11	4 16	4 22	4 27	4 33	21
10	3 46	3 51	3 56	4 1	4 6	4 11	4 17	4 22	4 28	4 34	4 40	20
11	3 50	3 54	3 59	4 5	4 10	4 16	4 22	4 28	4 35	4 42	4 48	19
12	3 53	3 58	4 3	4 9	4 15	4 21	4 28	4 35	4 42	4 49	4 57	18
13	3 56	4 1	4 7	4 13	4 20	4 26	4 34	4 41	4 49	4 57	5 5	17
14	3 59	4 5	4 11	4 18	4 24	4 32	4 39	4 47	4 56	5 5	5 14	16
15	4 2	4 8	4 15	4 22	4 29	4 37	4 45	4 54	5 3	5 13	5 23	15
16	4 5	4 12	4 19	4 26	4 34	4 42	4 51	5 0	5 10	5 21	5 32	14
17	4 8	4 15	4 22	4 30	4 38	4 47	4 56	5 6	5 17	5 29	5 42	13
18	4 11	4 18	4 26	4 34	4 42	4 52	5 2	5 13	5 25	5 37	5 51	12
19	4 14	4 21	4 29	4 37	4 47	4 57	5 7	5 19	5 32	5 46	6 1	11
20	4 16	4 24	4 32	4 41	4 51	5 1	5 13	5 25	5 39	5 54	6 10	10
21	4 19	4 26	4 35	4 44	4 54	5 6	5 18	5 31	5 45	6 1	6 19	9
22	4 21	4 29	4 38	4 47	4 58	5 10	5 22	5 36	5 51	6 9	6 28	8
23	4 23	4 31	4 40	4 50	5 1	5 13	5 26	5 41	5 57	6 16	6 36	7
24	4 25	4 33	4 42	4 53	5 4	5 16	5 30	5 46	6 2	6 22	6 43	6
25	4 26	4 35	4 44	4 55	5 7	5 19	5 34	5 50	6 7	6 27	6 50	5
16	4 27	4 36	4 46	4 57	5 9	5 22	5 37	5 53	6 11	6 32	6 56	4
27	4 28	4 37	4 48	4 58	5 10	5 24	5 39	5 55	6 14	6 36	7 1	3
28	4 29	4 38	4 49	5 0	5 11	5 25	5 40	5 57	6 17	6 39	7 4	2
29	4 30	4 39	4 50	5 1	5 12	5 26	5 41	5 58	6 19	6 40	7 7	1
30	4 30	4 39	4 50	5 1	5 12	5 27	5 41	5 58	6 20	6 40	7 8	0

Anomalia Orbis Sig. 6.

CANONES

MEDIORUM MOTUUM

STELLÆ VENERIS.

EPOCHÆ, SEU RADICES

Mediorum Motuum VENERIS numeratæ.

A MUNDI ORIGINE.

		S.	gr.	′	″
Ad Meridiem ultimi	Medii motus ♀	5	20	19	24
Decemb. proximè poſt	Aphelii	2	42	57	39
Mundi principium.	Nodi Borei.	0	16	27	50

A NABONASSARO.

Ad Meridiem ultimi	Medii motus ♀	0	34	14	44
Diei Ægyptiacarum	Aphelii	4	1	27	59
ἀπαγομένων.	Nodi Borei.	0	49	16	11

AB ALEXANDRI OBITU.

Ad Meridiem Diei Ægy-	Medii motus ♀	5	5	51	2
ptiorum Thoth Menſ.	Aphelii	4	11	51	15
proximè præcedentis.	Nodi Borei.	0	53	36	28

A CHRISTO DEO.

Ad meridiem ultimi	Medii motus ♀	0	43	23	58
Decemb. proximè poſt	Aphelii	4	19	46	35
Chriſti Nativitatem.	Nodi Borei.	0	56	55	16

CANON SEXAGENARIUS MEDIORUM MOTUUM STELLÆ VENERIS.

In diebus, atque dierum Sexagenis & Scrupulis.

Sexag.	12	22	32					
S.	gr.	′	″	‴	iv.			
	S.	gr.	′	″	‴	iv.		
		S.	gr.	′	″	‴	iv.	
			S.	gr.	′	″	‴	iv.
0	1	36	7	48	24	35	22	24
0	3	12	15	36	49	10	44	48
0	4	48	23	25	13	46	7	12
0	6	24	31	13	38	21	29	36
0	8	0	39	2	2	56	52	0
0	9	36	46	50	27	32	14	24
0	11	12	54	38	52	7	36	48
0	12	49	2	27	16	42	59	12
0	14	25	10	15	41	18	21	36
0	16	1	18	4	5	53	44	0
0	17	37	25	52	30	29	6	24
0	19	13	33	40	55	4	28	48
0	20	49	41	29	19	39	51	12
0	22	25	40	17	44	15	13	26
0	24	1	57	6	8	50	36	0
0	25	38	4	51	33	25	58	24
0	27	14	12	42	58	1	20	48
0	28	50	20	31	22	36	42	12
0	30	26	28	19	47	12	5	36
0	32	2	36	8	11	47	28	0
0	33	38	43	50	36	22	50	24
0	35	14	51	45	0	58	12	48
0	37	50	59	33	25	33	35	12
0	38	27	7	21	50	8	57	36
0	40	3	15	10	14	44	20	0
0	41	39	22	58	30	19	42	24
0	43	15	30	47	3	55	4	48
0	44	51	38	35	28	30	27	12
0	40	27	46	23	53	5	49	36
0	48	3	54	12	17	41	12	0
gr.	′	″	‴					
′	″	‴	iv.					
″	‴	iv.						
‴	iv.							

Sexag.		12	22	32					
gr.	S.	gr.	′	″	‴	iv.			
′		S.	gr.	′	″	‴	iv.		
″			S.	gr.	′	″	‴	iv.	
‴				S.	gr.	′	″	‴	iv.
31	0	49	40	2	0	42	16	34	24
32	0	51	16	9	49	6	51	56	48
33	0	52	52	17	37	31	27	19	12
34	0	54	28	25	25	56	2	41	36
35	0	56	4	33	14	20	38	4	0
36	0	57	40	41	2	45	13	26	24
37	0	59	16	48	51	9	48	48	48
38	1	0	52	56	39	34	24	11	12
39	1	2	29	4	27	58	59	33	36
40	1	4	5	12	16	22	34	56	0
41	1	5	41	20	4	48	10	18	24
42	1	7	17	27	53	12	45	40	48
43	1	8	53	35	41	37	21	3	12
44	1	10	29	43	30	1	56	25	36
45	1	12	5	51	18	26	31	48	0
46	1	13	41	59	6	51	7	10	24
47	1	15	18	6	55	15	42	32	48
48	1	16	54	14	43	40	17	55	12
49	1	18	30	22	32	4	53	17	36
50	1	20	6	30	20	29	28	40	0
51	1	21	42	38	8	54	4	2	24
52	1	23	18	45	57	18	39	24	48
53	1	24	54	53	45	43	14	47	12
54	1	26	31	1	34	7	50	0	36
55	1	28	7	9	22	32	25	32	0
56	1	29	43	17	10	57	0	54	24
57	1	31	19	24	59	21	36	16	48
58	1	32	55	32	47	46	11	39	12
59	1	34	31	40	36	10	47	1	36
60	1	36	7	48	24	35	22	24	0
′	gr.	′	″	‴	iv.				
″	′	″	‴	iv.					
‴	″	‴	iv.						
iv.	‴	iv.							

CANON SEXAGENARIUS MEDIORUM MOTUUM APHELII VENERIS.

In diebus, atque dierum Sexagenis & Scrupulis.

Sexag.		1x	2x	3x					
gr.	S.	gr.	'	"	'''	iv.			
'		S.	gr.	'	"	'''	iv.		
"			S.	gr.	'	"	'''	iv.	
'''				S.	gr.	'	"	'''	iv.
1	0	0	0	0	14	29	54	27	19
2	0	0	0	0	28	59	48	54	38
3	0	0	0	0	43	29	43	21	57
4	0	0	0	0	57	59	37	49	16
5	0	0	0	1	12	29	32	16	35
6	0	0	0	1	26	59	26	43	54
7	0	0	0	2	41	29	21	11	13
8	0	0	0	1	55	59	15	38	32
9	0	0	0	2	10	29	10	5	51
10	0	0	0	2	24	59	4	32	10
11	0	0	0	2	39	28	59	0	29
12	0	0	0	2	52	58	53	27	48
13	0	0	0	3	8	28	47	55	7
14	0	0	0	3	22	58	42	22	26
15	0	0	0	3	37	28	36	49	45
16	0	0	0	3	51	58	31	17	4
17	0	0	0	4	6	28	25	44	23
18	0	0	0	4	20	58	20	11	42
19	0	0	0	4	35	28	14	39	1
20	0	0	0	4	49	58	9	6	20
21	0	0	0	5	4	28	3	33	39
22	0	0	0	5	18	57	58	0	58
23	0	0	0	5	33	27	52	28	19
24	0	0	0	5	47	57	46	55	36
25	0	0	0	6	2	27	41	22	55
26	0	0	0	6	16	57	35	50	14
27	0	0	0	6	31	27	30	17	33
28	0	0	0	6	45	57	24	44	52
29	0	0	0	7	0	27	19	12	11
30	0	0	0	7	14	57	13	39	30
'	gr.	'	"	'''	iv.				
"	'	"	'''	iv.					
'''	"	'''	iv.						
iv.	'''	iv.							

Sexag.		1x	2x	3x					
gr.	S.	gr.	'	"	'''	iv.			
'		S.	gr.	'	"	'''	iv.		
"			S.	gr.	'	"	'''	iv.	
'''				S.	gr.	'		'''	
31	0	0	0	7	29	27	8	0	40
32	0	0	0	7	43	57	2	34	8
33	0	0	0	7	58	26	57	1	27
34	0	0	0	8	12	56	51	28	46
35	0	0	0	8	27	26	45	50	5
36	0	0	0	8	41	56	40	23	24
37	0	0	0	8	56	26	34	50	43
38	0	0	0	9	10	56	29	18	2
39	0	0	0	9	25	26	23	45	21
40	0	0	0	9	39	56	18	12	40
41	0	0	0	9	54	20	12	39	59
42	0	0	0	10	8	56	7	7	18
43	0	0	0	10	23	20	1	34	37
44	0	0	0	10	37	55	56	1	56
45	0	0	0	10	52	25	50	29	15
46	0	0	0	11	6	55	44	56	34
47	0	0	0	11	21	25	39	23	53
48	0	0	0	11	35	55	33	51	12
49	0	0	0	11	50	25	28	18	31
50	0	0	0	12	4	55	22	45	50
51	0	0	0	12	19	25	17	13	9
52	0	0	0	12	33	55	11	40	28
53	0	0	0	12	48	25	6	7	47
54	0	0	0	13	2	55	0	35	6
55	0	0	0	13	17	24	55	2	25
56	0	0	0	13	31	54	49	29	44
57	0	0	0	13	46	24	43	57	3
58	0	0	0	14	0	54	38	24	22
59	0	0	0	14	15	24	32	51	41
60	0	0	0	14	29	54	27	19	0
'	gr.	'	"	'''	iv.				
"	'	"	'''	iv.					
'''	"	'''	iv.						
iv.	'''	iv.							

Inſert this leaf betw een Page 152 & 193. of the Tables.

CANON SEXAGENARIUS MEDIORUM MOTUUM NODI BOREI VENERIS.

In diebus, atque dierum Sexagenis & Scrupulis.

exag.	1ª	2ª	3ª						
	S.	gr.	'	"	'''	iv.			
		S.	gr.	'	"	'''	iv.		
			S.	gr.	'	"	'''	iv.	
				S.	gr.	'	"	'''	iv.
	0	0	0	0	6	3	30	55	26
	0	0	0	0	12	7	1	50	52
	0	0	0	0	18	10	32	46	18
	0	0	0	0	24	14	3	41	44
	0	0	0	0	30	17	34	37	10
	0	0	0	0	36	21	5	32	36
	0	0	0	0	42	24	36	28	2
	0	0	0	0	48	28	7	23	28
	0	0	0	0	54	31	38	18	54
	0	0	0	1	0	35	9	14	20
	0	0	0	1	6	38	40	9	46
	0	0	0	1	12	42	11	5	12
	0	0	0	1	18	45	42	0	38
	0	0	0	1	24	49	12	56	4
	0	0	0	1	30	52	43	51	30
	0	9	0	1	36	56	14	46	56
	0	0	0	1	42	59	45	42	22
	0	0	0	1	49	3	16	37	48
	0	0	0	1	55	6	47	33	14
	0	0	0	2	1	10	18	28	40
	0	0	0	2	7	13	49	24	6
	0	0	0	2	13	17	20	19	32
	0	0	0	2	19	20	51	14	58
	0	0	0	2	25	24	22	10	24
	0	0	0	2	31	27	53	5	50
	0	0	0	2	37	31	24	1	16
	0	0	0	2	43	34	54	56	42
	0	0	0	2	49	38	25	52	8
	0	0	0	2	55	41	56	47	34
	0	0	0	3	1	45	27	43	0
	gr.	'	"	'''	iv.				
	'	"	'''	iv.					
	"	'''	iv.						
	'''	iv.							

Sexag.	1ª	2ª	3ª						
gr.	S.	gr.	'	"	'''	iv.			
'		S.	gr.	'	"	'''	iv.		
"			S.	gr.	'	"	'''	iv.	
'''				S	gr.	'	"	'''	iv.
31	0	0	0	3	7	48	58	38	26
32	0	0	0	3	13	52	29	33	52
33	0	0	0	3	19	56	0	29	18
34	0	0	0	3	25	59	31	24	44
35	0	0	0	3	32	3	2	20	10
36	0	0	0	3	38	6	33	15	36
37	0	0	0	3	44	10	4	11	2
38	0	0	0	3	50	13	35	6	28
39	0	0	0	3	56	17	6	1	54
40	0	0	0	4	2	20	36	57	20
41	0	0	0	4	8	24	7	52	46
42	0	0	0	4	14	27	38	48	12
43	0	0	0	4	20	31	9	43	38
44	0	0	0	4	26	34	40	39	4
45	0	0	0	4	32	38	11	34	30
46	0	0	0	4	38	41	42	29	56
47	0	0	0	4	44	45	13	25	22
48	0	0	0	4	50	48	44	20	48
49	0	0	0	4	56	52	15	16	14
50	0	0	0	5	2	55	46	11	40
51	0	0	0	5	8	59	17	7	6
52	0	0	0	5	15	2	48	2	32
53	0	0	0	5	21	6	18	57	58
54	0	0	0	5	27	9	49	53	24
55	0	0	0	5	33	13	20	48	50
56	0	0	0	5	39	16	51	44	16
57	0	0	0	5	45	20	22	39	42
58	0	0	0	5	51	23	53	35	8
59	0	0	0	5	57	27	24	30	34
60	0	0	0	6	3	30	55	26	0
'	gr.	'	"	'''	iv.				
"	'	"	'''	iv.					
'''	"	'''	iv.						
iv.	'''	iv.							

***RADICES** Mediorum Motuum **VENERIS** in Annis Julianis collectis, juxta formam vulgarem.*

RADICES.	Longitudo ♀. S.	gr.	′	″	Aphelium ♀. S.	gr.	′	″	Nod. Boreus ♀. S.	gr.	′	″
Mundi 1	10	20	19	24	5	12	57	39	0	16	27	50
Chriſti 1	1	13	23	58	8	19	46	35	1	26	55	16
1601	11	20	42	30	9	29	0	10	2	13	18	47
1621	5	24	32	59	9	29	29	35	2	13	31	4
1641	11	28	23	28	9	29	59	0	2	13	43	22
1661	6	2	13	57	10	0.	28	25	2	13	55	39
1681	0	6	4	26	10	0	57	51	2	14	7	57

*Medii Motus **VENERIS** in Annis Julianis expanſis.*

	1	7	14	47	29	0	0	1	28	0	0	0	37
	2	2	29	34	59	0	0	2	56	0	0	1	14
	3	10	14	22	28	0	0	4	25	0	0	1	50
B	4	6	0	46	6	0	0	5	53	0	0	2	27
	5	1	15	33	35	0	0	7	21	0	0	3	4
	6	9	0	21	5	0	0	8	49	0	0	3	41
	7	4	15	8	34	0	0	10	18	0	0	4	18
B	8	0	1	22	12	0	0	11	46	0	0	4	55
	9	7	16	19	41	0	0	13	14	0	0	5	32
	10	3	1	7	11	0	0	14	42	0	0	6	9
	11	10	15	54	40	0	0	16	11	0	0	6	45
B	12	6	2	18	17	0	0	17	39	0	0	7	22
	13	1	17	5	47	0	0	19	7	0	0	7	59
	14	9	1	53	16	0	0	20	35	0	0	8	36
	15	4	16	40	46	0	0	22	3	0	0	9	13
B	16	0	3	4	23	0	0	23	32	0	0	9	50
	17	7	17	51	53	0	0	25	0	0	0	10	27
	18	3	2	39	22	0	0	26	28	0	0	11	4
	19	10	17	26	52	0	0	27	56	0	0	11	40
B	20	6	3	50	29	0	0	29	25	0	0	12	17
	40	0	7	40	58	0	0	58	50	0	0	24	35
	60	6	11	31	27	0	1	28	16	0	0	36	53
	80	0	15	21	56	0	1	57	41	0	0	49	10
	100	6	19	12	24	0	2	27	6	0	1	1	28
	200	1	8	24	49	0	4	54	12	0	2	2	56
	300	7	27	37	13	0	7	21	18	0	3	4	24
	400	2	16	49	38	0	9	48	24	0	4	5	53
	500	9	6	2	2	0	12	15	30	0	5	7	21
	600	3	25	14	27	0	14	42	36	0	6	8	49
	700	10	14	26	51	0	17	9	41	0	7	10	17
	800	5	3	39	16	0	19	36	47	0	8	11	45
	900	11	22	51	4	0	22	3	53	0	9	13	13
	1000	0	12	4	5	0	24	30	59	0	10	14	42
	2000	0	24	8	10	1	19	1	59	0	20	29	23
	3000	7	6	12	14	2	13	32	58	1	0	44	5
	4000	1	18	16	19	3	8	3	57	1	10	58	47
	5000	8	0	20	24	4	2	34	57	1	21	13	28
	6000	2	12	24	29	4	27	5	56	2	1	28	10

Medii Motus VENERIS in Menſibus Anni communis.

MENSES.	Longitudo ♀. S.	gr.	′	″	Aphelium ♀. S.	gr.	′	″	Nod. Boreus ♀. S.	gr.	′	″
Januarius	0	0	0	0	0	0	0	0	0	0	0	0
Februarius	1	19	40	2	0	0	0	7	0	0	0	3
Martius	3	4	31	41	0	0	0	14	0	0	0	6
Aprilis	4	24	11	43	0	0	0	22	0	0	0	9
Maius	6	12	15	37	0	0	0	29	0	0	0	12
Junius	8	1	55	39	0	0	0	36	0	0	0	15
Julius	9	19	59	33	0	0	0	44	0	0	0	18
Auguſtus	11	9	39	35	0	0	0	51	0	0	0	21
September	0	29	19	37	0	0	0	59	0	0	0	24
October	2	17	23	31	0	0	1	6	0	0	0	27
November	4	7	3	33	0	0	1	13	0	0	0	31
December	5	25	7	27	0	0	1	21	0	0	0	34

Medii Motus VENERIS in Diebus, Horis, & Scrupulis.

Dies.	Longit. ♀. S.	gr.	′	″	Aphel. ′	″	Nod. ′	″
1	0	1	36	8	0	0	0	0
2	0	3	12	16	0	0	0	0
3	0	4	48	23	0	0	0	0
4	0	6	24	31	0	0	0	0
5	0	8	0	39	0	1	0	0
6	0	9	36	47	0	1	0	0
7	0	11	12	55	0	1	0	1
8	0	12	49	2	0	1	0	1
9	0	14	25	10	0	2	0	1
10	0	15	1	18	0	2	0	1
11	0	17	37	26	0	2	0	1
12	0	19	13	34	0	2	0	1
13	0	20	49	42	0	3	0	1
14	0	22	25	49	0	3	0	1
15	0	24	1	57	0	3	0	1
16	0	25	38	5	0	3	0	2
17	0	27	14	13	0	4	0	2
18	0	28	50	21	0	4	0	2
19	1	0	26	28	0	4	0	2
20	1	2	2	36	0	4	0	2
21	1	3	38	44	0	5	0	2
22	1	5	14	52	0	5	0	2
23	1	6	51	0	0	5	0	2
24	1	8	27	7	0	5	0	2
25	1	10	3	15	0	6	0	2
26	1	11	39	23	0	6	0	3
27	1	13	15	31	0	6	0	3
28	1	14	51	39	0	6	0	3
29	1	16	27	47	0	7	0	3
30	1	18	3	54	0	7	0	3
31	1	19	40	2	[illegible]	7	0	3

Horæ ′	Longit. ♀. gr.	′	″
1	0	4	0
2	0	8	1
3	0	12	1
4	0	16	1
5	0	20	1
6	0	24	2
7	0	28	2
8	0	32	2
9	0	36	3
10	0	40	3
11	0	44	3
12	0	48	4
13	0	52	4
14	0	56	4
15	1	0	5
16	1	4	5
17	1	8	5
18	1	12	5
19	1	16	6
20	1	20	6
21	1	24	6
22	1	28	7
23	1	32	7
24	1	36	7
25	1	40	8
26	1	44	8
27	1	48	8
28	1	52	9
29	1	56	9
30	1	0	10
″	′	″	‴

′ ″	Longit. ♀. gr.	′	″
31	2	4	10
32	2	8	10
33	2	12	11
34	2	16	11
35	2	20	11
36	2	24	12
37	2	28	12
38	2	32	13
39	2	36	13
40	2	40	13
41	2	44	14
42	2	48	14
43	2	52	14
44	2	56	15
45	3	0	15
46	3	4	15
47	3	8	16
48	3	12	16
49	3	16	16
50	3	20	17
51	3	24	17
52	3	28	17
53	3	32	18
54	3	36	18
55	3	40	18
56	3	44	19
57	3	48	19
58	3	52	19
59	3	56	20
60	4	0	2[illegible]
‴	′	″	‴

CANONES

PROSTHAPHÆRESIUM VENERIS
in Ellipſi.

UNA CUM

CANONE LATITUDINARIO

ET

MAXIMA ejus LATITUDINE Geocentricâ.

Proſthaphereſes ♀ *in Ellipſi.*

Grad.	Sig. 0. Æquatio Subtr. gr. ′ ″	Sig. 0. Logar.	Sig. 1. Æquatio Subtr. gr. ′ ″	Sig. 1. Logar.	Sig. 2. Æquatio Subtr. gr. ′ ″	Sig. 2. Logar.	Grad.
0	0 0 0	486294	0 25 3	486252	0 43 20	486138	30
1	0 0 52	486294	0 25 43	480249	0 43 55	486133	29
2	0 1 45	486294	0 26 23	486246	0 44 20	486129	28
3	0 2 37	486293	0 27 17	485243	0 44 44	486124	27
4	0 3 30	486293	0 28 1	486240	0 45 8	485119	26
5	0 4 22	486292	0 28 45	486237	0 45 31	486114	25
6	0 5 14	486291	0 29 28	486234	0 45 53	485109	24
7	0 6 7	486291	0 30 10	485231	0 46 14	485104	23
8	0 6 50	486290	0 30 51	486228	0 46 35	486099	22
9	0 7 41	486289	0 31 32	486225	0 46 55	486094	21
10	0 8 42	486288	0 32 13	486221	0 47 14	485089	20
11	0 9 33	486287	0 32 54	486218	0 47 32	485083	19
12	0 10 24	486286	0 33 34	486214	0 47 48	486078	18
13	0 11 15	486284	0 34 13	486211	0 48 4	486073	17
14	0 12 6	486283	0 34 51	485207	0 48 19	485058	16
15	0 12 57	486282	0 35 28	486203	0 48 33	486062	15
16	0 13 48	486281	0 36 5	486199	0 48 46	486056	14
17	0 14 38	486280	0 36 41	486196	0 48 50	486051	13
18	0 15 28	486278	0 37 17	486192	0 49 11	486045	12
19	0 16 18	486277	0 37 53	486188	0 49 21	486040	11
20	0 17 7	486275	0 38 27	486184	0 49 30	486034	10
21	0 17 56	486272	0 39 0	486179	0 49 39	486029	9
22	0 18 45	486271	0 39 33	486175	0 49 47	486024	8
23	0 19 34	486269	0 40 5	486171	0 49 54	485018	7
24	0 20 22	486267	0 40 37	486166	0 50 1	485013	6
25	0 21 0	486265	0 41 8	485162	0 50 7	486007	5
26	0 21 50	486263	0 41 37	485157	0 50 12	486002	4
27	0 22 43	485260	0 42 6	486153	0 50 16	485997	3
28	0 22 30	485258	0 42 34	486148	0 50 18	485991	2
20	0 24 17	486255	0 43 2	486143	0 50 19	485086	1
30	0 25 3	486252	0 43 29	485138	0 50 20	485980	0
	Adde.		Adde.		Adde.		
	Sig. 11.		Sig. 10.		Sig. 9.		

Proſthaphæreſes ♀ *in Ellipſi.*

Grad.	Sig. 3.		Sig. 4.		Sig. 5.		Grad.
	Æquatio Subtr.	Logar.	Æquatio Subtr.	Logar.	Æquatio Subtr.	Logar.	
	gr. ′ ″		gr. ′ ″		gr. ′ ″		
0	0 50 20	485980	0 43 42	485820	0 25 17	485702	30
1	0 50 21	485974	0 43 16	485816	0 24 31	485699	29
2	0 5[illegible]	485969	0 42 49	485811	0 23 45	485697	28
3	0 50 19	485964	0 42 21	485806	0 22 58	485694	27
4	0 50 16	485958	0 41 52	485801	0 22 11	485692	26
5	0 50 12	485952	0 41 22	485797	0 21 23	485689	25
6	0 50 6	485946	0 40 51	485792	0 20 35	485687	24
7	0 50 0	485941	0 40 20	485788	0 19 47	485684	23
8	0 49 53	485935	0 39 48	485784	0 18 58	485682	22
9	0 49 45	485930	0 39 15	485779	0 18 8	485680	21
10	0 49 37	485924	0 38 41	485775	0 17 17	485678	20
11	0 49 28	485919	0 38 6	485770	0 16 27	485[illegible]	19
12	0 49 18	485913	0 3[illegible] 1	485766	0 15 37	485675	18
13	0 49 7	485908	0 36 50	485762	0 14 47	485673	17
14	0 48 55	485902	0 36 20	485758	0 14 56	485671	16
15	0 48 42	485897	0 35 43	485754	0 13 5	485669	15
16	0 48 29	485892	0 35 0	485750	[illegible] 12 14	485[illegible]	14
17	0 48 14	485887	0 34 28	485746	[illegible] 11 23	485[illegible]	13
18	0 47 58	485882	0 33 49	485742	[illegible] 1[illegible] 31	485[illegible]5	12
19	0 47 41	485876	0 33 9	485738	0 [illegible]	485[illegible]4	11
20	0 47 23	485871	0 32 29	485734	0 8 4	485664	10
21	0 47 5	485866	0 31 48	485731	0 7 5[illegible]	485[illegible]62	9
22	0 46 46	485861	0 31 7	485727	0 7 2	485[illegible]	8
23	0 46 26	485856	0 3[illegible] 25	4857[illegible]	[illegible] 6 9	485[illegible]1	7
24	0 46 5	485851	0 29 43	485720	0 5 14	[illegible]	6
25	0 45 43	485840	0 29 0	485717	0 4 24	485[illegible]	5
26	0 45 20	485840	0 28 1[illegible]	485714	0 3 31	485659	4
27	0 44 57	485835	0 [illegible] 33	485711	0 2 20	485657	3
28	0 44 33	485830	0 2[illegible] 48	4857[illegible]	0 1 10	485[illegible]8	2
29	0 44 8	485825	0 26 3	4857[illegible]	0 [illegible] 53	[illegible]5658	1
30	[illegible] 43 42	485820	[illegible] 25 1	485702	0 0 [illegible]	485[illegible]8	0
	Adde.		Adde.		Adde.		
	Sig. 8.		Sig. 7.		Sig. 6.		

CANON LATITUDINARIUS VENERIS.

Anomalia Latitudinis à ☊. Reduct. Subtr.

Grad.	Sig. 0. Sept. Aſc. Sig. 6. Merid. Aſc.				Sig. 1. Sept. Aſc. Sig. 7. Merid. Aſc.				Sig. 2. Sept. Aſc. Sig. 8. Merid. Aſc.				Grad.
	Inclinat.	Reduct.	Curtat.	Scr. Prop.	Inclinat.	Reduct.	Curtat.	Scr. Prop.	Inclinat.	Reduct.	Curtat.	Scr. Prop.	
	gr. ′ ″	′ ″	P	′ ″	gr. ′ ″	′ ″	P	′ ″	gr. ′ ″	′ ″	P	′ ″	
0	0 0 0	0 0	0	0 0	1 41 22	2 35	18	30 0	2 55 38	2 35	57	51 57	30
1	0 3 32	0 7	0	1 2	1 44 26	2 38	19	20 54	2 57 23	2 32	58	52 28	29
2	0 7 4	0 13	0	2 5	1 47 27	2 42	21	31 48	2 59 5	2 28	59	52 58	28
3	0 10 36	0 19	1	3 8	1 50 25	2 45	22	22 41	3 0 43	2 25	60	53 27	27
4	0 14 9	0 20	1	4 11	1 53 22	2 47	23	33 33	3 2 17	2 21	61	53 56	26
5	0 17 40	0 32	2	5 14	1 56 18	2 50	25	34 25	3 3 48	2 16	63	54 23	25
6	0 21 11	0 38	2	6 17	1 59 13	2 52	26	35 16	3 5 15	2 12	64	54 49	24
7	0 24 41	0 45	2	7 19	2 2 3	2 54	27	36 6	3 6 38	2 8	65	55 14	23
8	0 28 11	0 51	3	8 21	2 4 52	2 55	29	36 56	3 8 1	2 3	66	55 38	22
9	0 31 41	0 57	3	0 22	2 7 37	2 56	30	37 45	3 9 19	1 59	66	56 1	21
10	0 35 11	1 2	3	10 25	2 10 21	2 56	31	38 34	3 10 34	1 54	67	56 23	20
11	0 38 40	1 8	4	11 27	2 13 2	2 57	32	39 22	3 11 45	1 50	68	56 44	19
12	0 42 9	1 13	4	12 29	2 15 41	2 58	33	40 9	3 12 53	1 45	68	57 4	18
13	0 45 37	1 18	5	13 30	2 18 18	2 58	35	40 55	3 13 57	1 40	69	57 23	17
14	0 49 4	1 24	5	14 31	2 20 54	2 59	36	41 40	3 14 57	1 34	70	57 40	16
15	0 52 28	1 29	6	15 32	2 23 23	2 0	38	42 26	3 15 54	1 29	70	57 57	15
16	0 55 52	1 34	6	16 32	2 25 51	2 59	39	43 10	3 16 47	1 24	71	58 13	14
17	0 59 15	1 40	7	17 32	2 28 18	2 59	41	43 53	3 17 37	1 18	71	58 28	13
18	1 2 37	1 45	7	18 32	2 30 41	2 58	42	44 35	3 18 24	1 13	72	58 42	12
19	1 5 59	1 50	8	19 32	2 32 [illegible]	2 57	43	45 16	3 19 6	1 8	72	58 54	11
20	1 9 20	1 54	8	20 31	2 35 20	2 56	44	45 57	3 19 45	1 2	73	59 5	10
21	1 12 40	1 59	9	21 30	2 37 36	2 56	45	46 37	3 20 20	0 57	73	59 16	9
22	1 15 59	2 4	10	22 29	2 39 48	2 55	47	47 16	3 20 52	0 51	74	59 25	8
23	1 19 14	2 8	11	23 27	2 41 57	2 54	48	47 54	3 21 20	0 45	74	59 33	7
24	1 22 28	2 12	12	24 24	2 44 3	2 52	49	48 32	3 21 44	0 38	74	59 40	6
25	1 25 41	2 16	13	25 21	2 46 7	2 50	50	49 9	3 22 4	0 32	75	59 46	5
26	1 28 51	2 21	14	26 18	2 48 7	2 47	52	49 44	3 22 21	0 26	75	59 52	4
27	1 32 0	2 25	15	27 14	2 50 4	2 45	53	50 18	3 22 33	0 19	75	59 56	3
28	1 35 9	2 28	16	28 10	2 51 59	2 42	54	50 52	3 22 42	0 13	75	59 58	2
29	1 38 17	2 32	17	29 5	2 53 49	2 38	56	51 25	3 22 48	0 7	75	59 59	1
30	1 41 22	2 35	18	30 0	2 55 38	2 35	57	51 57	3 22 50	0 0	75	60 0	0
	Sig. 11. Merid. Deſc. Sig. 5. Sept. Deſc.				Sig. 10. Merid. Deſc. Sig. 4. Sept. Deſc.				Sig. 9. Merid. Deſc. Sig. 3. Sept. Deſc.				

Anomalia Latitudinis à ☊. Reductio Add.

VENERIS
Maxima Latitudo Geocentrica.

Anomalia Orbis.

Grad.	Sig. 0.			Sig. 1.			Sig. 2.			Grad.
	Numerus Logarith.			Numerus Logarith.			Numerus Logarith.			
	985000	986000	987000	985000	986000	987000	985000	986000	987000	
	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	
0	1 24	1 25	1 26	1 27	1 28	1 29	1 37	1 38	1 39	30
1	1 24	1 25	1 26	1 27	1 28	1 29	1 37	1 38	1 40	29
2	1 24	1 25	1 26	1 27	1 28	1 30	1 37	1 39	1 40	28
3	1 24	1 25	1 26	1 27	1 29	1 30	1 38	1 39	1 41	27
4	1 24	1 25	1 26	1 28	1 29	1 30	1 38	1 40	1 41	26
5	1 24	1 25	1 26	1 28	1 29	1 30	1 39	1 40	1 42	25
6	1 24	1 25	1 26	1 28	1 29	1 31	1 40	1 41	1 42	24
7	1 24	1 25	1 26	1 28	1 30	1 31	1 40	1 41	1 43	23
8	1 24	1 25	1 27	1 29	1 30	1 31	1 41	1 42	1 44	22
9	1 24	1 25	1 27	1 29	1 30	1 31	1 41	1 43	1 44	21
10	1 24	1 25	1 27	1 29	1 30	1 32	1 42	1 43	1 45	20
11	1 24	1 25	1 27	1 29	1 31	1 32	1 42	1 44	1 45	19
12	1 24	1 25	1 27	1 30	1 31	1 32	1 43	1 44	1 46	18
13	1 24	1 25	1 27	1 30	1 31	1 33	1 44	1 45	1 47	17
14	1 24	1 26	1 27	1 30	1 32	1 33	1 44	1 46	1 47	16
15	1 25	1 26	1 27	1 31	1 32	1 33	1 45	1 46	1 48	15
16	1 25	1 26	1 27	1 31	1 32	1 34	1 46	1 47	1 49	14
17	1 25	1 26	1 27	1 31	1 33	1 34	1 46	1 48	1 49	13
18	1 25	1 26	1 27	1 32	1 33	1 34	1 47	1 49	1 50	12
19	1 25	1 26	1 27	1 32	1 33	1 35	1 48	1 49	1 51	11
20	1 25	1 26	1 27	1 32	1 34	1 35	1 49	1 50	1 52	10
21	1 25	1 26	1 28	1 33	1 34	1 35	1 49	1 51	1 53	9
22	1 25	1 27	1 28	1 33	1 34	1 36	1 50	1 52	1 53	8
23	1 26	1 27	1 28	1 33	1 35	1 36	1 51	1 52	1 54	7
24	1 26	1 27	1 28	1 34	1 35	1 36	1 52	1 53	1 55	6
25	1 26	1 27	1 28	1 34	1 36	1 37	1 53	1 55	1 56	5
26	1 26	1 27	1 29	1 35	1 36	1 37	1 53	1 55	1 57	4
27	1 26	1 27	1 29	1 35	1 36	1 38	1 54	1 56	1 58	3
28	1 26	1 28	1 29	1 36	1 37	1 38	1 55	1 57	1 59	2
29	1 27	1 28	1 29	1 36	1 37	1 39	1 56	1 58	2 0	1
30	1 27	1 28	1 29	1 37	1 38	1 39	1 57	1 59	2 1	0
	Sig. 11.			Sig. 10.			Sig. 9.			

Anomalia Orbis.

VENERIS
Maxima Latitudo Geocentrica.

Anomalia Orbis.

Grad.	Sig. 3. Numerus Logarith. 985000			Sig. 4. Numerus Logarith. 985000			Sig. 5. Numerus Logarith. 985000			Grad.
	985000	986000	987000	985000	986000	987000	985000	986000	987000	
	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	
0	1 57	1 59	2 1	2 41	2 44	2 47	4 33	4 42	4 51	30
1	1 58	2 0	2 2	2 43	2 46	2 49	4 40	4 49	4 58	29
2	1 59	2 1	2 3	2 46	2 49	2 52	4 46	4 56	5 6	28
3	2 0	2 2	2 4	2 48	2 51	2 54	4 53	5 3	5 14	27
4	2 1	2 3	2 5	2 50	2 54	2 57	5 0	5 11	5 22	26
5	2 2	2 4	2 6	2 53	2 56	3 0	5 7	5 19	5 31	25
6	2 3	2 5	2 7	2 55	2 59	3 2	5 14	5 27	5 40	24
7	2 4	2 6	2 8	2 58	3 2	3 5	5 22	5 35	5 49	23
8	2 6	2 8	2 10	3 1	3 5	3 8	5 30	5 44	5 59	22
9	2 7	2 9	2 11	3 4	3 8	3 11	5 38	5 53	6 9	21
10	2 8	2 10	2 12	3 7	3 11	3 15	5 47	6 2	6 19	20
11	2 9	2 11	2 13	3 10	3 14	3 18	5 55	6 12	6 30	19
12	2 11	2 13	2 15	3 13	3 17	3 21	6 4	6 22	6 41	18
13	2 12	2 14	2 16	3 16	3 20	3 25	6 13	6 32	6 53	17
14	2 13	2 15	2 18	3 19	3 24	3 28	6 22	6 43	7 5	16
15	2 15	2 17	2 19	3 22	3 28	3 32	6 32	6 53	7 17	15
16	2 16	2 18	2 21	3 26	3 31	3 36	6 41	7 4	7 29	14
17	2 18	2 20	2 22	3 30	3 35	3 40	6 50	7 15	7 42	13
18	2 19	2 22	2 24	3 34	3 39	3 44	6 59	7 26	7 54	12
19	2 21	2 23	2 25	3 38	3 43	3 49	7 8	7 36	8 7	11
20	2 2[illegible]	2 25	2 27	3 42	2 48	3 53	7 17	7 47	8 20	10
21	2 24	2 26	2 29	3 46	3 52	3 58	7 26	7 57	8 32	9
22	2 26	2 28	2 31	3 51	3 57	4 3	7 34	8 7	8 43	8
23	2 27	2 30	2 33	3 56	4 2	4 8	7 41	8 16	8 55	7
24	2 [illegible]0	2 32	2 34	4 0	4 7	4 14	7 48	8 24	9 5	6
25	2 41	2 34	2 36	4 5	4 12	4 19	7 54	8 32	9 14	5
20	2 33	2 36	2 38	4 11	4 18	4 25	8 0	8 38	9 22	4
27	2 35	2 38	2 40	4 16	4 24	4 31	8 3	8 42	9 28	3
28	2 37	2 40	2 43	4 22	4 30	4 38	8 7	8 46	9 32	2
29	2 30	2 42	2 45	4 27	4 36	4 44	8 10	8 48	9 35	1
30	2 41	2 44	2 47	4 33	4 42	4 51	8 11	8 49	9 36	0
	Sig. 8.			Sig. 7.			Sig. 6.			

Anomalia Orbis.

CANONES

MEDIORUM MOTUUM

STELLÆ MERCURII.

EPOCHÆ, SEU RADICES

Mediorum Motuum MERCURII numeratæ.

A MUNDI ORIGINE.

		S.	gr.	′	″
Ad Meridiem ultimi	Medii Motus ☿	2	8	8	41
Decemb. proximè poſt	Aphelium	1	32	28	26
Mundi Creationem.	Nodus Boreus.	4	14	26	13

A NABONASSARO.

Ad Meridiem ultimi	Medius Motus ☿	5	26	8	5
Diei Ægyptiacarum	Aphelium	3	3	26	15
ἐπαγομένων.	Nodus Boreus.	5	39	52	36

A MORTE ALEXANDRI.

Ad Meridiem Diei Ægy-	Medius Motus ☿	1	3	52	25
ptiorum Thoth Menſ.	Aphelium	3	15	28	25
proximè præcedentis.	Nodus Boreus.	5	51	11	7

A CHRISTO DEO.

Ad meridiem ultimi	Medius Motus ☿	5	11	53	10
Decemb. proximè poſt	Aphelium	3	24	39	11
Chriſti Nativitatem.	Nodus Boreus.	5	59	48	27

CANON SEXAGENARIUS MEDIORUM MOTUUM MERCURII.

In diebus, atque dierum Sexagenis & Scrupulis.

Sexag.		1ª	2ª	3ª					
gr.	S.	gr.	′	″	‴	iv.			
′		S.	gr.	′	″	‴	iv.		
″			S.	gr.	′	″	‴	iv.	
‴				S.	gr.	′	″	‴	iv.
1	0	4	5	32	35	29	24	16	15
2	0	8	11	5	10	58	48	32	30
3	0	12	16	37	46	28	12	48	45
4	0	16	22	10	21	57	37	5	0
5	0	20	27	42	57	27	1	21	15
6	0	24	33	15	32	56	25	27	30
7	0	28	38	48	8	25	49	53	45
8	0	32	44	20	43	55	14	10	0
9	0	36	49	53	19	24	38	26	15
10	0	40	55	25	54	54	2	42	30
11	0	45	0	58	30	23	26	58	45
12	0	49	6	31	5	52	51	15	0
13	0	53	12	3	41	22	15	31	15
14	0	57	17	36	16	51	39	47	30
15	1	1	23	8	52	21	4	3	45
16	1	5	28	41	27	50	28	20	0
17	1	9	34	14	3	19	52	36	15
18	1	13	39	46	38	49	16	52	30
19	1	17	45	19	14	18	41	8	45
20	1	21	50	51	49	48	5	25	0
21	1	25	56	24	25	17	29	41	15
22	1	30	1	57	0	46	53	57	30
23	1	34	7	29	36	16	18	13	45
24	1	38	12	2	11	45	42	30	0
25	1	42	18	34	47	15	6	46	15
26	1	46	24	7	22	44	31	2	30
27	1	50	29	39	58	13	55	18	45
28	1	54	35	12	33	42	19	35	0
29	1	58	40	45	9	12	43	51	15
30	2	2	46	17	44	42	8	7	30
′	gr.	′	″	‴	iv.				
″	′	″	‴	iv.					
‴	″	‴	iv.						
iv.	‴	iv.							

Sexag.		1ª	2ª	3ª					
gr.	S.	gr.	′	″	‴	iv.			
′		S.	gr.	′	″	‴	iv.		
″			S.	gr.	′	″	‴	iv.	
‴				S.	gr.	′	″	‴	iv.
31	2	6	51	50	20	11	32	23	45
32	2	10	57	22	55	40	56	40	0
33	2	15	2	55	31	10	20	56	15
34	2	19	8	28	6	39	45	12	30
35	2	23	14	0	42	9	9	28	45
36	2	27	19	33	17	38	33	45	0
37	2	31	25	5	53	7	58	1	15
38	2	35	30	38	28	27	22	17	30
39	2	39	36	11	4	6	46	33	45
40	2	43	41	43	39	36	10	50	0
41	2	47	47	16	15	5	35	6	15
42	2	51	52	48	50	34	59	22	30
43	2	55	58	21	20	4	23	38	45
44	3	0	3	54	1	33	47	55	0
45	3	4	9	26	37	3	12	11	15
46	3	8	14	59	12	32	36	27	30
47	3	12	20	31	48	2	0	43	45
48	3	16	26	4	22	31	25	0	0
49	3	20	31	36	59	0	49	16	15
50	3	24	37	9	34	30	13	32	30
51	3	28	42	42	9	59	37	48	45
52	3	32	48	14	45	29	2	5	0
53	3	36	53	47	20	58	26	21	15
54	3	40	59	19	56	27	50	27	30
55	3	45	4	52	31	57	14	53	45
56	3	49	10	25	7	26	39	10	0
57	3	53	15	57	42	56	3	26	15
58	3	57	21	30	18	25	27	42	30
59	4	1	27	2	53	54	51	58	45
60	4	5	32	35	29	24	16	15	0
′	gr.	′	″	‴	iv.				
″	′	″	‴	iv.					
‴	″	‴	iv.						
iv.	‴	iv.							

CANON SEXAGENARIUS MEDIORUM MOTUUM APHELII MERCURII.

In diebus, atque dierum Sexagenis & Scrupulis.

Sexag.		1x	2x	3x					
gr.	S.	gr.	'	''	'''	iv.			
'		S.	gr.	'	''	'''	iv.		
''			S.	gr.	'	''	'''	iv.	
'''				S.	gr.	'	''	'''	iv.
1	0	0	0	0	16	47	57	2	35
2	0	0	0	0	33	35	54	5	10
3	0	0	0	0	50	23	51	7	45
4	0	0	0	1	7	11	48	10	20
5	0	0	0	1	23	59	45	12	55
6	0	0	0	1	40	47	42	15	30
7	0	0	0	1	57	35	39	18	5
8	0	0	0	2	14	23	36	20	40
9	0	0	0	2	31	11	33	23	15
10	0	0	0	2	47	59	30	25	50
11	0	0	0	3	4	47	27	28	25
12	0	0	0	3	21	35	24	31	0
13	0	0	0	3	38	23	21	33	35
14	0	0	0	3	55	11	18	36	10
15	0	0	0	4	11	59	15	38	45
16	0	0	0	4	28	47	12	41	20
17	0	0	0	4	45	35	9	43	55
18	0	0	0	5	2	23	6	46	30
19	0	0	0	5	19	11	3	49	5
20	0	0	0	5	35	59	0	51	40
21	0	0	0	5	52	46	57	54	15
22	0	0	0	6	9	34	54	56	50
23	0	0	0	6	26	22	51	59	25
24	0	0	0	6	43	10	49	2	0
25	0	0	0	6	59	58	46	4	35
26	0	0	0	7	16	46	43	7	10
27	0	0	0	7	33	34	40	9	45
28	0	0	0	7	50	22	37	12	20
29	0	0	0	8	7	10	34	14	55
30	0	0	0	8	23	58	31	17	30
'	gr.	'	''	'''	iv.				
''	'	''	'''	iv.					
'''	''	'''	iv.						
iv.	'''	iv.							

Sexag.		1x	2x	3x					
gr.	S.	gr.	'	''	'''	iv.			
'		S.	gr.	'	''	'''	iv.		
''			S.	gr.	'	''	'''	iv.	
'''				S.	gr.	'	''	'''	iv.
31	0	0	0	8	40	45	28	20	5
32	0	0	0	8	57	34	25	22	40
33	0	0	0	9	14	22	22	25	15
34	0	0	0	9	31	10	19	27	50
35	0	0	0	9	47	58	16	30	25
36	0	0	0	10	4	46	13	33	0
37	0	0	0	10	21	34	10	35	35
38	0	0	0	10	38	22	7	38	10
39	0	0	0	10	55	10	4	40	45
40	0	0	0	11	11	58	1	43	20
41	0	0	0	11	28	45	58	45	55
42	0	0	0	11	45	33	55	48	30
43	0	0	0	12	2	21	52	51	5
44	0	0	0	12	19	9	49	53	40
45	0	0	0	12	35	57	46	56	15
46	0	0	0	12	52	45	43	58	50
47	0	0	0	13	9	33	41	1	25
48	0	0	0	13	26	21	38	4	0
49	0	0	0	13	43	9	35	6	35
50	0	0	0	13	59	57	32	9	10
51	0	0	0	14	16	45	29	11	45
52	0	0	0	14	33	33	26	14	20
53	0	0	0	14	50	21	23	16	55
54	0	0	0	15	7	9	20	19	30
55	0	0	0	15	23	57	17	22	5
56	0	0	0	15	40	45	14	24	40
57	0	0	0	15	57	33	11	27	15
58	0	0	0	16	14	21	8	29	50
59	0	0	0	16	31	9	5	32	25
60	0	0	0	16	47	57	2	35	0
'	gr.	'	''	'''	iv.				
''	'	''	'''	iv.					
'''	''	'''	iv.						
iv.	'''	iv.							

CANON SEXAGENARIUS MEDIORUM MOTUUM NODI BOREI MERCURII.

In diebus, atque dierum Sexagenis & Scrupulis.

Sexag.		1ª	2ª	3ª					
gr.	S.	gr.	'	"	‴	iv.			
'		S.	gr.	'	"	‴	iv.		
"			S.	gr.	'	"	‴	iv.	
‴				S.	gr.	'	"	‴	iv.
1	0	0	0	0	15	46	46	31	14
2	0	0	0	0	31	33	33	2	28
3	0	0	0	0	47	20	19	33	42
4	0	0	0	1	3	7	6	4	55
5	0	0	0	1	18	53	52	36	9
6	0	0	0	1	34	40	39	7	23
7	0	0	0	1	50	27	25	38	37
8	0	0	0	2	6	14	12	9	51
9	0	0	0	2	22	0	58	41	5
10	0	0	0	2	37	47	45	12	18
11	0	0	0	2	53	34	31	43	32
12	0	0	0	3	0	21	18	14	46
13	0	0	0	3	25	8	4	46	0
14	0	0	0	3	40	54	51	17	14
15	0	0	0	3	56	41	37	48	28
16	0	0	0	4	12	28	24	19	42
17	0	0	0	4	28	15	10	50	55
18	0	0	0	4	44	1	57	22	9
19	0	0	0	4	59	48	43	53	23
20	0	0	0	5	15	25	30	24	37
21	0	0	0	5	31	22	16	55	51
22	0	0	0	5	47	9	3	27	5
23	0	0	0	6	2	55	49	58	18
24	0	0	0	6	18	42	36	29	32
25	0	0	0	6	34	29	23	0	46
26	0	0	0	6	50	16	9	22	0
27	0	0	0	7	0	2	56	3	14
28	0	0	0	7	21	49	42	34	28
29	0	0	0	7	37	36	29	5	42
30	0	0	0	7	53	23	15	36	55
'	gr.	'	"	‴	iv.				
"	'	"	‴	iv.					
‴	"	‴	iv.						
iv.	‴	iv.							

Sexag.		1ª	2ª	3ª					
gr.	S.	gr.	'	"	‴	iv.			
'		S.	gr.	'	"	‴	iv.		
"			S.	gr.	'	"	‴	iv.	
‴				S.	gr.	'	"	‴	iv.
31	0	0	0	8	9	10	2	8	9
32	0	0	0	8	24	56	48	39	23
33	0	0	0	8	40	43	35	10	37
34	0	0	0	8	46	30	21	41	51
35	0	0	0	9	12	17	8	13	5
36	0	0	0	9	28	3	54	44	18
37	0	0	0	9	43	50	41	15	32
28	0	0	0	9	59	37	27	46	46
39	0	0	0	10	15	24	14	18	0
40	0	0	0	10	31	11	0	49	14
41	0	0	0	10	46	57	47	20	28
42	0	0	0	11	2	44	33	51	42
43	0	0	0	11	18	31	20	22	55
44	0	0	0	11	34	18	6	54	9
45	0	0	0	11	50	4	53	25	23
46	0	0	0	12	5	51	30	56	37
47	0	0	0	12	21	38	16	27	51
48	0	0	0	12	37	25	12	59	5
49	0	0	0	12	53	11	59	30	18
50	0	0	0	13	8	58	46	1	32
51	0	0	0	13	24	45	32	32	46
52	0	0	0	13	40	32	19	4	0
53	0	0	0	13	56	19	5	35	14
54	0	0	0	14	12	5	52	6	28
55	0	0	0	14	27	52	38	37	42
56	0	0	0	14	43	39	25	8	55
57	0	0	0	14	59	26	11	40	9
58	0	0	0	15	15	12	58	11	23
59	0	0	0	15	30	59	44	42	37
60	0	0	0	15	46	46	31	13	51
'	gr.	'	"	‴	iv.				
"	'	"	‴	iv.					
‴	"	‴	iv.						
iv.	‴	iv.							

***RADICES** Mediorum Motuum **MERCURII** in Annis Julianis collectis, juxta formam vulgarem.*

EPOCHÆ.		Longitudo ☿.				Aphelium ☿.				Nod. Boreus ☿.			
		S.	gr.	′	″	S.	gr.	′	″	S.	gr.	′	″
Mundi	1	4	8	8	41	3	2	28	26	8	14	26	13
Christi	1	10	11	53	10	6	24	39	11	11	29	48	27
	1601	2	2	34	13	8	10	6	15	1	12	30	0
	1621	2	17	27	14	8	10	40	30	1	12	2	1
	1641	3	2	20	25	8	11	14	26	1	13	34	2
	1661	3	17	13	26	8	11	48	31	1	14	6	3
	1681	4	2	6	27	8	12	22	36	1	14	38	4

*Medii Motus **MERCURII** in Annis Julianis expanſis.*

	1	1	23	43	16	0	0	1	42	0	0	1	36
	2	3	17	26	32	0	0	3	24	0	0	3	12
	3	5	11	9	48	0	0	5	7	0	0	4	48
B	4	7	8	58	36	0	0	6	49	0	0	6	24
	5	9	2	41	52	0	0	8	31	0	0	8	9
	6	10	26	25	8	0	0	10	13	0	0	9	36
	7	0	20	8	24	0	0	11	55	0	0	11	12
B	8	2	17	57	12	0	0	13	38	0	0	12	48
	9	4	11	40	28	0	0	15	20	0	0	14	24
	10	6	5	23	44	0	0	17	3	0	0	16	1
	11	7	29	7	0	0	0	18	45	0	0	17	37
B	12	9	26	55	48	0	0	20	27	0	0	19	13
	13	11	20	39	4	0	0	22	10	0	0	20	49
	14	1	14	22	20	0	0	23	52	0	0	22	25
	15	3	8	5	36	0	0	25	34	0	0	24	1
B	16	5	5	54	24	0	0	27	16	0	0	25	37
	17	6	29	37	40	0	0	28	58	0	0	27	13
	18	8	23	20	56	0	0	30	41	0	0	28	49
	19	10	17	4	12	0	0	32	23	0	0	30	25
B	20	0	14	53	0	0	0	34	5	0	0	32	1
	40	0	29	45	2	0	1	8	11	0	1	4	2
	60	1	14	39	3	0	1	42	16	0	1	36	3
	80	1	29	32	4	0	2	16	21	0	2	8	5
	100	2	14	25	5	0	2	50	26	0	2	40	6
	200	4	28	50	9	0	5	40	53	0	5	20	12
	300	7	13	15	14	0	8	31	19	0	8	0	17
	400	9	27	40	18	0	11	21	46	0	10	40	23
	500	0	12	5	23	0	14	12	12	0	13	20	29
	600	2	26	30	27	0	17	2	39	0	16	0	35
	700	5	10	55	32	0	19	53	5	0	18	40	41
	800	7	25	20	37	0	22	43	32	0	21	20	47
	900	10	9	45	41	0	25	33	58	0	24	0	52
	1000	0	24	10	46	0	28	24	25	0	26	40	58
	2000	1	18	21	32	1	26	48	50	1	23	21	56
	3000	2	12	32	17	2	25	13	15	2	20	2	55
	4000	3	6	43	3	3	23	37	40	3	16	43	53
	5000	4	0	53	49	4	22	2	5	4	13	24	51
	6000	4	25	4	35	5	20	26	30	5	10	5	49

Medii Motus MERCURII in Menſibus Anni communis.

MENSES.	Longitudo ☿.				Aphelium ☿.				Nod. Boreus ☿.			
	S.	gr.	′	″	S.	gr.	′	″	S.	gr.	′	″
Januarius	0	0	0	0	0	0	0	0	0	0	0	0
Februarius	4	6	51	50	0	0	0	9	0	0	0	8
Martius	8	1	27	3	0	0	0	17	0	0	0	15
Aprilis	0	8	18	53	0	0	0	26	0	0	0	22
Maius	4	11	5	11	0	0	0	34	0	0	0	30
Junius	8	17	57	1	0	0	0	43	0	0	0	37
Julius	0	20	43	19	0	0	0	51	0	0	0	44
Auguſtus	4	27	35	9	0	0	1	0	0	0	0	52
September	9	4	27	0	0	0	1	8	0	0	1	0
October	1	7	13	17	0	0	1	17	0	0	1	8
November	5	14	5	8	0	0	1	26	0	0	1	15
December	9	16	51	26	0	0	1	34	0	0	1	22

Medii Motus MERCURII in Diebus, Horis, & Scrupulis.

Dies.	Longit. ☿.				Aphel.		Nod.	
	S.	gr.	′	″	′	″	′	″
1	0	4	5	32	0	0	0	0
2	0	8	11	5	0	0	0	0
3	0	12	16	38	0	1	0	1
4	0	16	22	10	0	1	0	1
5	0	20	27	43	0	1	0	1
6	0	24	33	16	0	2	0	1
7	0	28	38	48	0	2	0	2
8	1	2	44	21	0	2	0	2
9	1	6	49	53	0	3	0	2
10	1	10	55	16	0	3	0	2
11	1	15	0	58	0	3	0	3
12	1	19	6	31	0	3	0	3
13	1	23	12	4	0	4	0	3
14	1	27	17	36	0	4	0	3
15	2	1	23	9	0	4	0	4
16	2	5	28	41	0	4	0	4
17	2	9	34	14	0	5	0	4
18	2	13	39	47	0	5	0	4
19	2	17	45	19	0	5	0	5
20	2	21	50	52	0	5	0	5
21	2	25	56	24	0	6	0	5
22	3	0	1	57	0	6	0	5
23	3	4	7	30	0	6	0	6
24	3	8	13	2	0	7	0	6
25	3	12	18	35	0	7	0	6
26	3	16	24	7	0	7	0	6
27	3	20	29	40	0	8	0	7
28	3	24	35	13	0	8	0	7
29	3	28	40	45	0	8	0	7
30	4	2	46	18	0	8	0	8
31	4	6	51	50	0	9	0	8

Horæ	Longit. ☿.		
′	gr.	′	″
1	0	10	14
2	0	20	28
3	0	30	42
4	0	40	56
5	0	51	9
6	1	1	23
7	1	11	37
8	1	21	51
9	1	32	5
10	1	42	19
11	1	52	32
12	2	2	46
13	2	13	0
14	2	23	14
15	2	33	28
16	2	43	41
17	2	53	55
18	3	4	9
19	3	14	23
20	3	24	37
21	3	34	51
22	3	45	4
23	3	55	18
24	4	5	32
25	4	15	46
26	4	26	0
27	4	36	14
28	4	46	28
29	4	56	42
30	5	6	56
‴	‴	iv.	v.

′	Longit. ☿.		
″	′	″	‴
31	5	17	9
32	5	27	22
33	5	37	36
34	5	47	50
35	5	58	4
36	6	8	18
37	6	18	32
38	6	28	46
39	6	39	0
40	6	49	14
41	6	59	28
42	7	9	42
43	7	19	56
44	7	30	8
45	7	40	22
46	7	50	36
47	8	0	50
48	8	11	4
49	8	21	18
50	8	31	32
51	8	41	46
52	8	52	0
53	9	2	14
54	9	12	28
55	9	22	42
56	9	32	56
57	9	43	10
58	9	53	24
59	10	3	38
60	10	13	52
‴	‴	iv.	v.

CANONES

PROSTHAPHÆRESIUM ☿ IN
Ellipſi.

ET

PARALLAXIUM ORBIS ☿ IN TERRA;

UNA CUM

MERCURII Maximâ LATITUDINE Geocentricâ.

Proſthaphereſes ☿ *in Ellipſi.*

Grad.	Sig. 0. Æquatio Subtr. gr. ′ ″	Sig. 0. Logar.	Sig. 1. Æquatio Subtr. gr. ′ ″	Sig. 1. Logar.	Sig. 2. Æquatio Subtr. gr. ′ ″	Sig. 2. Logar.	Grad.
0	0 0 0	466951	9 46 56	466247	18 5 26	464099	30
1	0 20 2	466950	10 5 28	466200	18 19 28	464002	29
2	0 40 4	466947	10 23 54	466151	18 33 17	463904	28
3	1 0 6	466943	10 42 14	466100	18 46 53	463804	27
4	1 20 8	466938	11 0 27	466047	19 0 17	463702	26
5	1 40 9	466931	11 18 24	465992	19 13 28	463508	25
6	2 0 8	466923	11 36 35	465935	19 26 26	463492	24
7	2 20 7	466913	11 54 28	465877	19 39 9	463386	23
8	2 40 5	466901	12 12 14	465817	19 51 38	463278	22
9	3 0 2	466888	12 29 52	465756	20 3 53	463168	21
10	3 19 59	466873	12 47 23	465694	20 15 53	463056	20
11	3 39 52	466856	13 4 46	465630	20 27 28	462943	19
12	3 59 42	466837	13 22 0	465565	20 39 9	462828	18
13	4 19 30	466818	13 39 6	465497	20 50 25	462712	17
14	4 39 15	466797	13 56 4	465427	21 1 26	462595	16
15	4 58 57	466775	14 12 54	465357	21 12 12	462476	15
16	5 18 36	466751	14 29 35	465285	21 22 41	462355	14
17	5 38 13	466725	14 46 6	465211	21 32 53	462232	13
18	5 57 47	466698	15 2 28	465135	21 42 50	462107	12
19	6 17 17	466669	15 18 40	465058	21 52 30	461980	11
20	6 36 43	466639	15 34 43	464979	22 1 52	461852	10
21	6 56 5	466607	15 50 36	464898	22 10 58	461722	9
22	7 15 22	466574	16 6 18	464816	22 19 45	461592	8
23	7 34 35	466539	16 21 49	464732	22 28 14	461459	7
24	7 53 44	466502	16 37 11	464647	22 36 25	461325	6
25	8 12 49	466464	16 52 22	464560	22 44 17	461190	5
26	8 31 49	466424	17 7 21	464471	22 51 50	461054	4
27	8 50 44	466382	17 22 9	464380	22 59 4	460916	3
28	9 9 34	466338	17 36 46	464288	23 5 58	460777	2
29	9 28 18	466293	17 51 12	464194	23 12 32	460636	1
30	9 46 56	466247	18 5 26	464099	23 18 46	460402	0
	Adde.		Adde.		Adde.		
	Sig. 11.		Sig. 10.		Sig. 9.		

Proſthaphæreſes ☿ *in Ellipſi.*

Grad.	Sig. 3. Æquatio Subtr. gr. ′ ″	Sig. 3. Logar.	Sig. 4. Æquatio Subtr. gr. ′ ″	Sig. 4. Logar.	Sig. 5. Æquatio Subtr. gr. ′ ″	Sig. 5. Logar.	Grad.
0	23 18 46	460493	23 16 42	455677	15 21 44	450759	30
1	23 24 39	460349	23 9 15	455505	14 56 53	450621	29
2	23 30 11	460204	23 1 14	455332	14 31 29	450486	28
3	23 35 22	460058	22 52 41	455159	14 5 34	450355	27
4	23 44 10	459910	22 43 34	454986	13 37 9	450228	26
5	23 44 30	459760	22 33 54	454813	13 12 9	450104	25
6	23 48 40	459609	22 23 40	454640	12 44 43	449984	24
7	23 52 22	459457	22 12 51	454466	12 16 47	449867	23
8	23 55 40	459304	22 1 27	454293	11 48 23	449753	22
9	23 58 35	459149	21 48 28	454121	11 19 24	449644	21
10	24 1 4	458994	21 36 59	453949	10 50 15	449539	20
11	24 3 9	458838	21 23 51	453778	10 20 32	449438	19
12	24 4 50	458680	21 10 10	453607	9 50 23	449341	18
13	24 6 6	458521	20 55 51	453436	9 19 52	449248	17
14	24 6 57	458360	20 40 55	453267	8 48 59	449161	16
15	24 7 22	458198	20 25 26	453099	8 17 44	449078	15
16	24 7 19	458035	20 9 21	452931	7 46 7	449000	14
17	24 6 50	457871	19 52 37	452765	7 14 11	448927	13
18	24 5 53	457706	19 35 20	452599	6 41 58	448859	12
19	24 4 29	457541	19 17 26	452435	6 9 28	448796	11
20	24 2 37	457376	18 58 57	452272	5 36 44	448739	10
21	24 0 16	457209	18 39 51	452111	5 3 44	448687	9
22	23 57 27	457041	18 20 10	451952	4 30 31	448640	8
23	23 54 8	456874	18 0 14	451795	3 57 6	448599	7
24	23 50 20	456704	17 39 2	451640	3 23 31	448563	6
25	23 46 1	456534	17 17 35	451487	2 49 40	448533	5
26	23 41 11	456364	16 55 32	451336	2 16 1	448508	4
27	23 35 50	456193	16 32 59	451188	1 42 7	448488	3
28	23 29 59	456021	16 9 48	451043	1 8 8	448474	2
29	23 23 36	455849	15 46 4	45[illegible]0	0 34 5	448465	1
30	23 16 42	455677	15 21 44	450759	0 0 0	448460	0
	Adde.		Adde.		Adde.		
	Sig. 8.		Sig. 7.		Sig. 6.		

CANON LATITUDINARIUS MERCURII.

Anomalia Latitudinis à ☊. Nodo Boreo. Reduct. Subtr.

Grad.	Sig. 0. Sept. Aſc. Sig. 6. Merid. Aſc. Inclinat. gr. ′ ″	Reduct. ′ ″	Curtat. p	Scr. Prop. ′ ″	Sig. 1. Sept. Aſc. Sig. 7. Merid. Aſc. Inclinat. gr. ′ ″	Reduct. ′ ″	Curtat. p	Scr. Prop. ′ ″	Sig. 2. Sept. Aſc. Sig. 8. Merid. Aſc. Inclinat. gr. ′ ″	Reduct. ′ ″	Curtat. p	Scr. Prop. ′ ″	Grad.
0	0 0 0	0 0	0	0 0	3 27 0	10 49	78	30 0	5 58 32	10 49	235	51 57	30
1	0 7 13	0 26	1	1 2	3 33 13	11 2	83	30 54	6 2 6	10 36	240	52 28	29
2	0 14 27	0 52	0	2 5	3 39 22	11 14	88	31 48	6 5 33	10 22	245	52 58	28
3	0 21 40	1 18	1	3 8	3 45 28	11 25	93	32 41	6 8 53	10 7	249	53 27	27
4	0 28 53	1 44	1	4 11	3 51 30	11 35	98	33 33	6 12 6	9 51	254	53 56	26
5	0 36 5	2 10	2	5 14	3 57 28	11 44	103	34 25	6 15 13	9 34	258	54 23	25
6	0 43 16	2 35	3	6 17	4 3 21	11 53	109	35 16	6 18 13	9 17	262	54 49	24
7	0 50 26	3 1	4	7 10	4 9 9	12 1	115	36 6	6 21 6	8 59	266	55 14	23
8	0 57 36	3 26	5	8 21	4 14 53	12 8	120	36 56	6 23 51	8 41	270	55 38	22
9	1 4 45	3 51	7	9 22	4 20 32	12 14	125	37 45	6 26 29	8 22	273	56 2	21
10	1 11 53	4 16	9	10 25	4 26 6	12 19	131	38 34	6 29 0	8 2	277	56 23	20
11	1 18 59	4 40	11	11 27	4 31 36	12 23	136	39 22	6 31 24	7 42	281	56 44	19
12	1 26 4	5 4	13	12 29	4 37 0	12 26	141	40 9	6 33 42	7 21	285	57 4	18
13	1 33 7	5 28	16	12 20	4 42 20	12 28	146	40 55	6 35 53	6 59	288	57 23	17
14	1 40 8	5 51	18	14 31	4 47 35	12 29	151	41 40	6 37 57	6 37	291	57 40	16
15	1 47 8	6 14	21	15 32	4 52 45	12 30	157	42 26	6 39 52	6 14	294	57 57	15
16	1 54 6	6 37	24	16 32	4 57 49	12 29	163	43 10	6 41 42	5 51	296	58 13	14
17	2 1 2	6 59	27	17 32	5 2 48	12 28	168	43 53	6 43 23	5 28	298	58 28	13
18	2 7 56	7 21	30	18 32	5 7 41	12 26	173	44 35	6 44 57	5 4	301	58 42	12
19	2 14 47	7 42	33	10 32	5 12 28	12 23	178	45 16	6 46 24	4 40	303	58 54	12
20	2 21 35	8 22	37	20 31	5 17 9	12 19	183	45 57	6 47 43	4 16	305	59 5	10
21	2 28 21	8 22	40	21 30	5 21 44	12 14	188	46 37	6 48 54	3 51	306	59 16	9
22	2 35 5	8 41	44	22 29	5 26 13	12 8	193	47 16	6 49 58	3 26	308	59 25	8
22	2 41 45	8 58	48	23 27	5 30 37	12 1	199	47 54	6 50 55	3 1	310	59 33	7
24	2 48 24	9 17	52	24 24	5 34 55	11 53	205	48 32	6 51 44	2 35	311	59 40	6
25	2 54 58	9 34	56	25 21	5 39 7	11 44	210	49 9	6 52 25	2 10	312	59 46	5
20	3 1 29	9 51	60	26 18	5 43 13	11 35	215	49 44	6 52 59	1 44	313	59 52	4
27	3 7 57	10 7	64	27 14	5 47 13	11 25	221	50 18	6 53 26	1 18	314	59 56	3
28	3 14 22	10 22	69	28 10	5 51 6	11 14	226	50 52	6 53 45	0 52	315	59 58	2
29	3 20 43	10 36	73	29 5	5 54 52	11 2	231	51 25	6 53 56	0 26	316	59 59	1
30	3 27 0	10 49	78	30 0	5 58 32	10 49	235	51 57	6 54 0	0 0	316	60 0	0
	Sig. 11. Merid. Deſc. Sig. 5. Sept. Deſc.				Sig. 10. Merid. Deſc. Sig. 4. Sept. Deſc.				Sig. 9. Merid. Deſc. Sig. 3. Sept. Deſc.				

Anomalia Latitudinis à ☊. Nodo Boreo. Reductio Add.

CANONES

PARALLAXIUM ORBIS MERCURII

IN TERRA:

UNA CUM

MERCURII

LATITUDINE MAXIMA GEOCENTRICA.

Parallaxis Orbis ♀ in Tellure Addenda.

Anomalia Orbis Sig. o.

Grad.	Numerus Logarithmicus.											Grad.
	947000	948000	949000	950000	951000	952000	953000	954000	955000	956000	957000	
	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	
0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	30
1	0 [illegible]	0 14	0 14	0 14	0 15	0 15	0 15	0 15	0 15	0 16	0 16	29
2	[illegible]	0 28	0 28	0 29	0 29	0 30	0 30	0 31	0 31	0 32	0 32	28
3	0 [illegible]	0 42	0 43	0 43	0 44	0 45	0 45	0 46	0 47	0 48	0 49	27
4	0 55	0 56	0 57	0 58	0 59	1 0	1 1	1 2	1 3	1 4	1 5	26
5	1 [illegible]	1 9	1 11	1 12	1 13	1 15	1 16	1 17	1 18	1 19	1 21	25
6	1 22	1 22	1 2	1 26	1 28	1 29	1 31	1 32	1 34	1 36	1 37	24
7	1 [illegible]	1 37	1 39	1 41	1 42	1 44	1 46	1 48	1 50	1 51	1 53	23
8	1 49	1 51	1 53	1 55	1 57	1 59	2 1	2 3	2 5	2 7	2 10	22
o	2 3	2 5	2 7	2 9	2 12	2 [illegible]	2 16	2 19	2 21	2 23	2 26	21
10	2 16	2 19	2 21	2 24	2 26	2 29	2 32	2 34	2 37	2 30	2 42	20
11	2 30	2 32	2 35	2 38	2 41	2 44	2 47	2 49	2 52	2 55	2 58	19
12	2 43	2 46	2 49	2 52	2 55	2 58	3 2	3 5	3 8	3 11	3 14	18
13	2 57	3 0	3 3	3 7	3 10	3 13	3 17	3 20	3 23	3 27	3 30	17
14	3 11	3 14	3 17	3 21	3 24	3 28	3 32	3 35	3 39	3 43	3 47	16
15	3 24	3 28	3 31	3 35	3 39	3 43	3 47	3 51	3 55	3 59	4 3	15
16	3 37	3 41	3 45	3 40	3 53	3 57	4 2	4 6	4 10	4 15	4 19	14
17	3 51	3 55	3 59	4 4	4 8	4 12	4 17	4 21	4 26	4 30	4 35	13
18	4 4	4 9	4 13	4 18	4 22	4 27	4 32	4 36	4 41	4 46	4 51	12
19	4 18	4 22	4 27	4 32	4 37	4 41	4 46	4 51	4 56	5 2	5 7	11
20	4 31	4 36	4 41	4 46	4 51	4 56	5 1	5 7	5 12	5 17	5 23	10
21	4 44	4 40	4 55	5 0	5 5	5 11	5 16	5 22	5 27	5 33	5 39	9
22	4 58	5 3	5 8	5 14	5 20	5 25	5 31	5 37	5 42	5 48	5 55	8
23	5 11	5 16	5 22	5 28	5 34	5 40	5 46	5 51	5 57	6 4	6 10	7
24	5 24	5 30	5 36	5 4[illegible]	5 48	5 54	6 0	6 7	6 13	6 20	6 26	6
25	5 3[illegible]	5 43	5 49	5 56	6 2	6 8	6 15	6 22	6 28	6 35	6 42	5
26	5 50	5 56	6 3	6 5	6 16	6 22	6 30	6 37	6 43	6 50	6 58	4
27	6 3	5 10	6 16	6 23	5 30	6 37	6 44	6 51	6 58	7 6	7 13	3
28	6 16	5 23	6 30	6 3[illegible]	5 44	6 52	6 59	7 6	7 14	7 21	7 29	2
29	6 29	6 35	6 43	6 51	6 58	7 6	7 13	7 21	7 29	7 36	7 44	1
30	6 42	6 50	6 57	7 4	7 12	7 20	7 28	7 36	7 44	7 52	8 0	0

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 11.

Parallaxis Orbis ☿ in Tellure Addenda.

Anomalia Orbis Sig. 0.

Numerus Logarithmicus.

Grad.	958000	959000	960000	961000	962000	963000	964000	965000	966000	967000	968000	Grad.
	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	
0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	30
1	0 10	0 17	0 17	0 17	0 17	0 18	0 18	0 18	0 19	0 19	0 19	29
2	0 33	0 33	0 34	0 34	0 35	0 36	0 30	0 37	0 38	0 38	0 39	28
3	0 49	0 50	0 51	0 52	0 53	0 54	0 55	0 55	0 56	0 57	0 58	27
4	1 6	1 7	1 8	1 9	1 10	1 12	1 13	1 14	1 15	1 16	1 18	26
5	1 22	1 24	1 25	1 27	1 28	1 30	1 31	1 33	1 34	1 35	1 37	25
6	1 39	1 41	1 42	1 44	1 46	1 48	1 49	1 51	1 53	1 55	1 56	24
7	1 55	1 57	1 59	2 1	2 3	2 5	2 8	2 10	2 12	2 14	2 16	22
8	2 12	2 14	2 17	2 19	2 21	2 23	2 26	2 28	2 30	2 33	2 35	22
9	2 28	2 31	2 33	2 36	2 38	2 41	2 44	2 46	2 49	2 52	2 55	21
10	2 45	2 48	2 50	2 53	2 56	2 59	3 2	3 5	3 8	3 11	3 14	20
11	3 1	3 4	3 7	3 10	3 14	3 17	3 20	3 23	3 27	3 30	3 33	19
12	3 18	3 21	3 24	3 28	3 31	3 35	3 38	3 42	3 45	3 49	3 53	18
13	3 34	3 38	3 41	3 45	3 49	3 52	3 56	4 0	4 4	4 8	4 12	17
14	3 51	3 54	3 58	4 2	4 6	4 10	4 14	4 18	4 22	4 27	4 31	16
15	4 7	4 11	4 15	4 19	4 24	4 28	4 32	4 37	4 41	4 46	4 51	15
16	4 23	4 27	4 32	4 37	4 41	4 46	4 51	4 55	5 0	5 5	5 10	14
17	4 40	4 44	4 49	4 54	4 59	5 4	5 9	5 14	5 19	5 24	5 29	13
18	4 56	5 1	5 6	5 11	5 16	5 21	5 27	5 32	5 37	5 43	5 48	12
19	5 12	5 17	5 22	5 28	5 34	5 39	5 45	5 50	5 56	6 1	6 7	11
20	5 28	5 34	5 39	5 45	5 51	5 57	6 3	6 8	6 14	6 20	6 26	10
21	5 44	5 50	5 57	6 2	6 8	6 14	6 21	6 27	6 33	6 39	6 45	9
22	6 1	6 6	6 13	6 19	6 26	6 32	6 38	6 45	6 51	6 58	7 5	8
23	6 17	6 23	6 30	6 36	6 42	6 49	6 56	7 2	7 10	7 17	7 24	7
24	6 33	6 39	6 46	6 53	7 0	7 7	7 14	7 21	7 28	7 35	7 43	6
25	6 49	6 56	7 3	7 10	7 17	7 24	7 32	7 39	7 47	7 54	8 2	5
26	7 5	7 12	7 19	7 27	7 34	7 42	7 49	7 57	8 5	8 12	8 21	4
27	7 29	7 28	7 36	7 43	7 51	7 59	8 7	8 15	8 22	8 31	8 40	3
28	7 37	7 44	7 52	8 0	8 8	8 17	8 25	8 33	8 42	8 50	8 58	2
29	7 52	8 0	8 9	8 17	8 25	8 34	8 42	8 52	9 0	9 8	9 17	1
30	8 8	8 17	8 25	8 33	8 42	8 51	9 0	9 9	9 18	9 27	9 36	0

Parallaxis Orbis Sub-

Anomalia Orbis Sig. 11.

Parallaxis Orbis ♀ in Tellure Addenda.

Anomalia Orbis Sig. 1.

Numerus Logarithmicus.

Grad.	947000	948000	949000	950000	951000	952000	953000	954000	955000	956000	957000	Grad.
	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	
0	6 43	5 50	6 57	7 4	7 12	7 20	7 28	7 36	7 44	7 52	8 0	30
1	6 55	7 3	7 10	7 18	7 20	7 34	7 42	7 50	7 58	8 7	8 15	29
2	7 8	7 16	7 24	7 32	7 40	7 48	7 56	8 5	8 13	8 22	8 31	28
3	7 21	7 29	7 37	7 45	7 53	8 2	8 11	8 19	8 28	8 37	8 46	27
4	7 33	7 41	7 50	7 58	8 [illegible]	8 16	8 25	8 34	8 43	8 52	9 1	26
5	7 46	7 54	8 3	8 12	8 21	8 30	8 39	8 48	8 58	9 7	9 17	25
6	7 58	8 7	8 16	8 25	8 34	8 44	8 53	9 2	9 12	9 22	9 32	24
7	8 11	8 20	8 29	8 38	8 48	8 57	9 7	9 17	9 27	9 37	9 47	23
8	8 23	8 32	8 42	8 51	9 1	9 11	9 21	9 31	9 41	9 51	10 2	22
0	8 36	8 45	8 55	9 4	9 14	9 25	9 35	9 45	9 56	10 6	10 17	21
10	8 48	8 57	9 7	9 17	9 28	9 38	9 49	9 59	10 10	10 21	10 32	20
11	0 0	9 10	9 20	9 30	9 41	9 52	10 2	10 13	10 24	10 35	10 47	19
12	9 12	9 22	9 33	9 43	9 54	10 5	10 16	10 27	10 38	10 50	11 1	18
13	9 24	9 34	0 45	9 56	10 7	10 18	10 29	10 41	10 52	11 4	11 16	17
14	9 26	9 47	9 58	10 9	10 20	10 31	10 43	10 55	11 6	11 18	11 31	16
15	9 48	9 59	10 10	10 22	10 33	10 45	10 56	11 8	11 20	11 33	11 45	15
16	0 59	10 11	10 22	10 34	10 45	10 57	11 10	11 22	11 34	11 47	11 59	14
17	10 11	10 24	10 34	10 46	10 58	11 10	11 23	11 35	11 48	12 1	12 14	13
18	10 22	10 24	10 46	10 59	11 11	11 23	11 36	11 49	12 2	12 15	12 28	12
19	10 34	10 40	10 58	11 11	11 23	11 35	11 49	12 2	12 15	12 29	12 42	11
20	10 45	10 58	11 10	11 22	11 36	11 49	12 2	12 15	12 29	12 42	12 50	10
21	10 57	11 9	11 22	11 35	11 48	12 1	12 15	12 28	12 42	12 56	13 10	9
22	11 8	11 21	11 34	11 47	12 0	12 14	12 27	12 41	12 55	13 10	13 24	8
23	11 19	11 32	11 45	11 55	12 12	12 26	12 40	12 54	13 9	13 23	13 38	7
24	11 30	11 43	11 57	12 10	12 24	12 38	12 52	13 7	13 22	13 36	13 51	6
25	11 41	11 54	12 8	12 22	12 36	12 50	13 5	13 20	13 35	13 50	14 5	5
26	11 52	12 5	12 19	12 33	12 48	13 2	13 17	13 32	13 47	14 3	14 18	4
27	12 3	12 16	12 30	12 44	13 0	13 14	13 29	13 45	14 0	14 16	14 32	3
28	12 13	12 27	12 41	12 56	13 11	13 26	13 41	13 57	14 12	14 29	14 45	2
29	12 23	12 37	12 52	13 7	13 24	13 38	13 53	14 9	14 25	14 41	14 58	1
30	12 33	12 48	13 3	13 18	13 36	13 49	14 5	14 21	14 38	14 54	15 11	0

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 10.

Parallaxis Orbis ♃ in Tellure Addenda.

Anomalia Orbis Sig. 1.

Numerus Logarithmicus.

Grad.	958000	959000	960000	961000	962000	963000	964000	965000	966000	967000	968000	Grad.
	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	
0	8 8	8 16	8 25	8 33	8 42	8 51	9 0	9 9	9 18	9 27	9 36	30
1	8 24	8 33	8 41	8 50	8 59	9 8	9 17	9 27	9 36	9 45	9 55	29
2	8 40	8 49	8 58	9 7	9 16	9 25	9 35	9 44	9 54	10 4	10 14	28
3	8 55	9 5	9 14	9 23	9 33	9 42	9 52	10 2	10 12	10 22	10 32	27
4	9 11	9 20	9 30	9 39	9 40	10 0	10 10	10 20	10 30	10 40	10 51	26
5	9 26	9 36	9 46	9 56	10 6	10 17	10 27	10 37	10 48	10 59	11 9	25
6	9 42	9 52	10 2	10 12	10 23	10 33	10 44	10 55	11 6	11 17	11 28	24
7	9 57	10 8	10 18	10 29	10 39	10 50	11 1	11 12	11 23	11 35	11 46	23
8	10 12	10 23	10 34	10 45	10 56	11 7	11 18	11 30	11 41	11 53	12 5	22
9	10 28	10 39	10 50	11 1	11 12	11 24	11 35	11 47	11 59	12 11	12 23	21
10	10 43	10 54	11 6	11 17	11 29	11 41	11 52	12 4	12 16	12 29	12 41	20
11	10 58	11 10	11 21	11 33	11 45	11 57	12 9	12 21	12 34	12 47	12 59	19
12	11 13	11 25	11 37	11 49	12 1	12 13	12 26	12 39	12 52	13 4	13 17	18
13	11 28	11 40	11 52	12 5	12 17	12 30	12 43	12 56	13 9	13 22	13 35	17
14	11 43	11 55	12 8	12 21	12 33	12 46	13 0	13 13	13 26	13 40	13 53	16
15	11 58	12 10	12 23	12 36	12 49	13 3	13 16	13 30	13 43	13 57	14 11	15
16	12 12	12 25	12 38	12 52	13 [illegible]	13 19	13 33	13 47	14 1	14 15	14 29	14
17	12 27	12 40	12 54	13 7	13 21	13 35	13 49	14 4	14 18	14 32	14 47	13
18	12 41	12 55	13 9	13 23	13 37	13 51	14 6	14 20	14 35	14 50	15 4	12
19	12 56	13 10	13 24	13 38	13 52	14 7	14 22	14 37	14 52	15 7	15 22	11
20	13 1	13 25	13 39	13 53	14 8	14 23	14 38	14 53	15 9	15 24	15 40	10
21	13 25	13 39	13 54	14 8	14 23	14 39	14 54	15 9	15 25	15 41	15 57	9
22	13 39	13 53	14 8	14 23	14 39	14 54	15 10	15 20	15 42	15 58	16 14	8
23	13 52	14 8	14 23	14 38	14 54	15 10	15 26	15 42	15 58	16 15	16 32	7
24	14 7	14 22	14 38	14 52	15 9	15 26	15 42	15 58	16 15	16 12	16 49	6
25	14 20	14 36	14 52	15 8	15 24	15 41	15 57	16 14	16 31	16 48	17 0	5
26	14 34	14 50	15 6	15 22	15 39	15 56	16 13	16 30	16 48	17 5	17 23	4
27	14 48	15 4	15 21	15 37	15 54	16 11	16 28	16 46	17 4	17 22	17 40	3
28	15 1	15 18	15 35	15 51	16 [illegible]	16 26	16 44	17 2	17 20	17 38	17 56	2
29	15 15	15 32	15 40	16 [illegible]	16 24	16 41	16 59	17 17	17 35	17 54	18 13	1
30	15 28	15 45	16 2	16 20	16 38	16 56	17 14	17 33	17 52	18 10	18 29	0

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 10.

Parallaxis Orbis ☿ in Tellure Addenda.

Anomalia Orbis Sig. 2.

Numerus Logarithmicus.

Grad.	947000	948000	949000	950000	951000	952000	953000	954000	955000	956000	957000	Grad.
	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	
0	12 33	12 48	13 3	13 18	13 34	13 49	14 5	14 21	14 38	14 55	15 11	30
1	12 43	12 58	13 13	13 20	13 45	14 1	14 17	14 33	14 50	15 7	15 24	29
2	12 53	14 8	13 24	13 40	13 56	14 12	14 28	14 45	15 2	15 10	15 36	28
3	13 3	13 10	13 34	13 [illegible]	14 7	14 23	14 40	14 57	15 14	15 31	15 49	27
4	13 13	13 29	13 45	14 1	14 17	14 34	14 51	15 8	15 26	15 43	16 1	26
5	13 22	13 38	13 55	14 11	14 28	14 45	15 2	15 20	15 37	15 55	16 13	25
6	13 32	13 48	14 5	14 21	14 38	14 56	15 13	15 31	15 49	16 7	16 26	24
7	13 41	13 58	14 14	14 [illegible]	14 49	15 6	15 24	15 42	16 0	16 19	16 38	23
8	13 50	14 7	14 24	14 41	14 59	15 17	15 35	15 53	16 11	16 30	16 49	22
9	13 50	14 15	14 34	14 51	15 9	15 27	15 45	16 4	16 22	16 42	17 1	21
10	14 8	14 25	14 43	15 1	15 19	15 37	15 55	16 14	16 33	16 53	17 13	20
11	14 17	14 34	14 52	15 10	15 28	15 47	16 6	16 25	16 44	17 4	17 24	19
12	14 25	14 43	15 1	15 19	15 38	15 56	16 16	16 35	16 55	17 15	17 35	18
13	14 33	14 52	15 10	15 28	15 47	16 6	16 25	16 45	17 5	17 26	17 46	17
14	14 4[illegible]	[illegible]	15 18	[illegible]	15 55	16 15	16 35	16 54	17 15	17 36	17 57	16
15	14 5	15 8	15 27	15 46	16 5	16 25	16 45	17 5	17 25	17 46	18 7	15
16	14 58	15 17	15 35	15 54	16 14	16 34	16 54	17 15	17 35	17 59	18 18	14
17	15 5	15 24	15 43	16 3	16 22	16 42	17 3	17 24	17 45	18 7	18 28	13
18	15 12	15 32	15 51	16 11	16 31	16 51	17 12	17 33	17 55	18 16	18 38	12
19	15 [illegible]	15 4[illegible]	15 59	16 19	16 39	17 0	17 21	17 42	18 4	18 26	18 48	11
20	15 27	15 4[illegible]	16 7	16 2[illegible]	16 47	17 8	17 30	17 51	18 13	18 35	18 58	10
21	15 34	15 54	16 14	16 34	16 55	17 16	17 38	18 0	18 22	18 44	19 7	9
22	15 41	16 1	16 21	16 42	17 3	17 24	17 46	18 8	18 31	18 53	19 17	8
23	15 47	16 7	16 28	16 49	17 1[illegible]	17 32	17 54	18 16	18 39	19 2	19 26	7
24	15 53	16 14	16 35	16 56	17 1[illegible]	17 39	18 2	18 24	18 47	19 11	19 35	6
25	15 59	16 20	16 41	17 3	17 24	17 47	18 9	18 32	18 55	19 19	19 43	5
26	16 5	16 26	16 47	17 9	17 31	17 53	18 16	18 40	19 3	19 27	19 52	4
27	16 11	16 32	16 53	17 15	17 38	18 0	18 23	18 47	10 11	19 35	20 0	3
28	16 16	16 38	16 59	17 22	17 44	18 7	18 30	18 54	19 18	19 42	20 8	2
29	16 21	16 43	17 5	17 2[illegible]	17 50	18 13	18 37	19 1	19 25	19 5	20 1[illegible]	1
30	16 26	16 48	17 10	17 33	17 56	18 19	18 43	19 8	19 32	19 57	20 23	0

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 9.

Parallaxis Orbis ☿ *in Tellure Addenda.*

Anomalia Orbis Sig. 2.

Numerus Logarithmicus.

Grad.	958000	959000	960000	961000	962000	963000	964000	965000	966000	967000	968000	Grad.
	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	
0	15 28	15 45	16 2	16 20	16 38	16 56	17 14	17 33	17 52	18 10	18 29	30
1	15 41	15 59	16 16	16 34	16 52	17 11	17 29	17 48	18 7	18 27	18 46	29
2	15 54	16 12	16 30	16 48	17 7	17 25	17 44	18 3	18 23	18 42	19 2	28
3	16 7	16 25	16 43	17 2	17 21	17 40	17 59	18 19	18 38	18 58	19 18	27
4	16 19	16 38	16 56	17 15	17 35	17 54	18 14	18 33	18 54	19 14	19 34	26
5	16 32	16 51	17 10	17 29	17 48	18 8	18 28	18 48	19 9	19 30	19 50	25
6	16 44	17 3	17 23	17 42	18 2	18 22	18 42	19 3	19 24	19 45	20 6	24
7	16 57	17 16	17 36	17 55	18 10	18 36	18 57	19 18	19 39	20 0	20 22	23
8	17 9	17 28	17 48	18 8	18 29	18 50	19 11	19 32	19 53	20 15	20 37	22
9	17 21	17 41	18 1	18 21	18 42	19 3	19 25	19 46	20 8	20 30	20 53	21
10	17 33	17 53	18 13	18 34	18 55	19 17	19 38	20 0	20 23	20 45	21 8	20
11	17 44	18 5	18 26	18 47	19 8	19 30	19 52	20 14	20 37	21 0	21 23	19
12	17 56	18 17	18 38	18 59	19 21	19 43	20 5	20 28	20 51	21 14	21 38	18
13	18 7	18 28	18 50	10 12	19 34	19 56	20 19	20 42	21 5	21 29	21 52	17
14	18 18	18 40	19 2	19 24	19 46	20 9	20 31	20 55	21 19	21 43	22 7	10
15	18 29	18 51	19 13	19 36	19 58	20 21	20 45	21 9	21 32	21 57	22 22	15
16	18 40	19 2	19 25	19 47	20 10	20 34	20 58	21 22	21 46	22 11	22 36	14
17	18 51	19 13	19 36	19 59	20 22	20 46	21 10	21 35	21 59	22 25	22 50	13
18	19 1	10 24	19 47	20 10	20 34	20 58	21 23	21 47	22 12	22 38	23 4	12
19	19 11	19 34	19 57	20 21	20 46	21 10	21 35	22 0	22 25	22 51	23 17	11
20	19 21	19 45	20 8	20 32	20 57	21 22	11 47	22 12	22 38	23 4	23 31	10
21	19 31	19 55	20 19	20 43	21 8	21 33	21 59	22 25	22 51	23 17	23 44	9
22	19 40	20 5	20 29	20 54	21 19	21 44	22 10	22 37	23 3	23 30	23 57	8
23	19 50	20 14	20 39	21 4	21 29	21 55	22 21	22 48	23 15	23 43	24 10	7
24	19 59	20 24	20 49	21 14	11 40	22 6	22 33	23 0	23 27	23 55	24 23	6
25	20 8	20 22	20 58	21 24	21 50	22 17	22 44	23 11	23 39	24 7	24 36	5
26	20 17	20 42	21 8	21 34	22 0	22 27	22 54	23 22	23 50	24 19	24 48	4
27	20 25	20 50	21 10	21 43	22 10	22 37	23 5	23 33	24 2	24 31	25 0	3
28	29 33	20 59	21 25	21 52	22 19	22 47	23 15	23 44	24 13	24 42	25 12	2
29	20 41	21 7	21 34	22 1	22 29	22 57	23 25	23 54	24 23	24 53	25 23	1
30	20 49	21 15	21 42	22 10	22 38	23 6	23 35	24 4	24 34	25 4	25 35	0

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 9.

Parallaxis Orbis ☿ in Tellure Addenda.

Anomalia Orbis Sig. 3.

Numerus Logarithmicus.

Grad.	947000	948000	949000	950000	951000	952000	953000	954000	955000	956000	957000	Grad.
	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	
0	16 26	16 48	17 10	17 33	17 56	18 19	18 43	19 7	19 32	19 57	20 23	30
1	16 31	16 53	17 15	17 38	18 2	18 25	18 49	19 14	19 39	20 4	20 30	29
2	16 36	16 58	17 20	17 43	18 7	18 30	18 55	19 20	19 45	20 11	20 37	28
3	16 40	17 2	17 25	17 48	18 12	18 36	19 1	19 25	19 51	20 17	20 44	27
4	16 44	17 7	17 29	17 53	18 17	18 41	19 6	19 31	19 57	20 23	20 50	26
5	16 48	17 11	17 33	17 57	18 21	18 46	19 11	19 36	20 2	20 29	20 56	25
6	16 51	17 14	17 37	18 1	18 25	18 50	19 15	19 41	20 7	20 34	21 2	24
7	16 54	17 17	17 41	18 5	18 29	18 54	19 20	19 46	20 12	20 39	21 7	23
8	16 57	17 20	17 44	18 8	18 33	18 58	19 24	19 50	20 17	20 44	21 12	22
9	17 0	17 23	17 47	18 11	18 36	19 2	19 28	19 54	20 21	20 49	21 17	21
10	17 2	17 26	17 50	18 14	18 39	19 5	19 31	19 58	20 25	20 53	21 22	20
11	17 4	17 28	17 52	18 17	18 42	19 8	19 34	20 2	20 29	20 57	21 26	19
12	17 6	17 30	17 54	18 19	18 45	19 11	19 37	20 5	20 32	21 1	21 30	18
13	17 7	17 31	17 55	18 21	18 47	19 13	19 40	20 7	20 35	21 4	21 33	17
14	17 8	17 33	17 57	18 23	18 49	19 15	19 42	20 9	20 38	21 7	21 36	16
15	17 9	17 34	17 58	18 24	18 50	19 17	19 44	20 12	20 40	21 10	21 39	15
16	17 10	17 34	17 59	18 25	18 51	19 18	19 46	20 14	20 42	21 12	21 42	14
17	17 10	17 35	18 0	18 26	18 52	19 19	19 47	20 15	20 44	21 14	21 44	13
18	17 11	17 35	18 0	18 26	18 53	19 20	19 48	20 16	20 45	21 15	21 46	12
19	17 9	17 34	18 0	18 26	18 53	19 20	19 48	20 17	20 46	21 16	21 47	11
20	17 8	17 34	17 59	18 26	18 53	19 20	19 48	20 17	20 47	21 17	21 48	10
21	17 7	17 33	17 58	18 25	18 52	19 20	19 48	20 17	20 47	21 17	21 48	9
22	17 6	17 32	17 57	18 24	18 51	19 19	19 47	20 17	20 46	21 17	21 49	8
23	17 4	17 30	17 55	18 23	18 50	19 18	19 45	20 16	20 46	21 17	21 48	7
24	17 2	17 28	17 53	18 21	18 48	19 15	19 45	20 15	20 45	21 16	21 47	6
25	17 0	17 25	17 51	18 18	18 47	19 14	19 43	20 13	20 43	21 15	21 46	5
26	16 57	17 22	17 48	18 16	18 43	19 12	19 41	20 11	20 41	21 13	21 45	4
27	16 54	17 19	17 45	18 13	18 40	19 9	19 38	20 8	20 39	21 10	21 43	3
28	16 5	17 16	17 42	18 1	18 37	19 6	19 35	20 5	20 30	21 8	21 40	2
29	16 46	17 12	17 38	18 6	18 33	19 2	19 31	20 2	20 33	21 5	21 37	1
30	16 41	17 7	17 34	18 2	18 29	18 58	19 27	19 58	20 29	21 1	21 34	0

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 8.

Parallaxis Orbis ☿ in Tellure Addendi.

Anomalia Orbis Sig. 3.

Numerus Logarithmicus.

Grad.	958000		959000		960000		961000		962000		963000		964000		965000		966000		967000		968000		Grad.
	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	
0	20	40	21	15	21	42	22	10	22	38	23	0	23	35	24	4	24	34	25	4	25	35	30
1	20	57	21	25	21	51	22	18	22	47	23	15	23	44	24	14	24	44	25	15	25	46	29
2	21	4	21	31	21	58	22	26	22	55	23	24	23	53	24	23	24	54	25	25	25	56	28
3	21	11	21	38	22	6	22	34	23	2	23	33	24	2	24	33	25	4	25	35	26	7	27
4	21	17	21	45	22	13	22	42	23	11	23	41	24	11	24	42	25	13	25	45	26	17	26
5	21	23	21	51	22	20	22	49	23	19	23	49	24	20	24	51	25	22	25	54	26	27	25
6	21	29	21	58	22	27	22	56	23	26	23	57	24	28	24	59	25	31	26	4	26	37	24
7	21	35	22	4	22	33	23	3	23	33	24	4	24	35	25	7	25	40	26	13	26	46	23
8	21	41	22	10	22	39	23	9	23	40	24	11	24	43	25	15	25	48	26	21	26	55	22
9	21	46	22	15	22	45	23	15	23	46	24	18	24	50	25	22	25	56	26	29	27	4	21
10	21	51	22	20	22	50	23	21	23	52	24	24	24	57	25	30	26	3	26	37	27	12	20
11	21	55	22	25	22	55	23	27	23	58	24	30	25	3	25	37	26	10	26	45	27	20	19
12	21	59	22	29	23	0	23	31	24	3	24	36	25	9	25	42	26	17	26	52	27	28	18
13	22	3	22	33	23	4	23	36	24	9	24	41	25	15	25	49	26	24	26	59	27	35	17
14	22	7	22	37	23	8	23	40	24	13	24	46	25	20	25	55	26	30	27	6	27	42	16
15	22	10	22	41	23	12	23	44	24	17	24	51	25	25	26	0	26	36	27	12	27	49	15
16	22	13	22	44	23	16	23	48	24	21	24	55	25	30	26	5	26	41	27	18	27	55	14
17	22	15	22	46	23	19	23	51	24	25	24	59	25	34	26	10	26	46	27	23	28	1	13
18	22	17	22	48	23	21	23	54	24	28	25	2	25	38	26	14	26	51	27	28	28	6	12
19	22	18	22	50	23	23	23	57	24	31	25	6	25	41	26	18	26	55	27	33	28	11	11
20	22	19	22	52	23	25	23	59	24	33	25	9	25	44	26	21	26	59	27	37	28	16	10
21	22	20	22	53	23	26	24	0	24	35	25	11	25	47	26	24	27	2	27	41	28	20	9
22	22	21	22	54	23	27	24	1	24	37	25	12	25	49	26	27	27	5	27	44	28	24	8
23	22	21	22	54	23	27	24	2	24	38	25	14	25	51	26	29	27	7	27	47	28	27	7
24	22	20	22	53	23	27	24	2	24	38	25	15	25	52	26	30	27	9	27	49	28	30	6
25	22	19	22	52	23	27	24	2	24	38	25	15	25	53	26	31	27	11	27	51	28	32	5
26	22	18	22	51	23	26	24	1	24	38	25	15	25	53	26	32	27	11	27	52	28	34	4
27	22	16	22	50	23	25	24	0	24	37	25	14	25	53	26	32	27	12	27	53	28	35	3
28	22	14	22	48	23	23	23	59	24	35	25	13	25	52	26	31	27	12	27	53	28	36	2
29	22	11	22	45	23	20	23	57	24	33	25	11	25	50	26	30	27	11	27	53	28	36	1
30	22	7	22	42	23	17	23	54	24	31	25	5	25	48	26	29	27	10	27	52	28	35	0

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 8

Parallaxis Orbis ♀ in Tellure Addenda.

Anomalia Orbis Sig. 4.

Grad.	Numerus Logarithmicus.											Grad.
	947000	948000	949000	950000	951000	952000	953000	954000	955000	956000	957000	
	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	
0	16 41	17 7	17 34	18 1	18 29	18 58	19 27	19 58	20 29	21 1	21 34	30
1	16 35	17 3	17 29	17 57	18 24	18 53	19 23	19 53	20 25	20 57	21 30	29
2	16 22	16 57	17 24	17 51	18 19	18 48	19 18	19 48	20 20	20 52	21 25	28
3	16 20	16 51	17 18	17 46	18 14	18 43	19 13	19 43	20 15	20 47	21 20	27
4	16 20	16 45	17 12	17 40	18 8	18 37	19 7	19 38	20 9	20 41	21 15	26
5	16 13	16 39	17 6	17 33	18 2	18 31	19 1	19 32	20 3	20 35	21 9	25
6	16 7	16 32	16 59	17 27	17 55	18 24	18 54	19 24	19 56	20 28	21 2	24
7	16 0	16 25	16 52	17 19	17 47	18 16	18 46	19 17	19 49	20 21	20 55	23
8	15 52	16 18	16 44	17 11	17 40	18 9	18 39	19 9	19 42	20 13	20 47	22
9	15 44	16 9	16 36	17 3	17 31	18 0	18 30	19 1	19 32	20 5	20 39	21
10	15 3	16 1	16 27	16 55	17 22	17 51	18 21	18 53	19 24	19 58	20 30	20
11	15 26	15 52	16 18	16 45	17 13	17 42	18 12	18 43	19 14	19 47	20 20	19
12	15 17	15 42	16 9	16 30	17 4	17 32	18 2	18 33	19 4	19 37	20 10	18
13	15 7	15 32	15 59	16 20	16 53	17 22	17 52	18 22	18 54	19 26	20 0	17
14	14 57	15 22	15 48	16 15	16 42	17 11	17 41	18 11	18 45	19 15	19 49	16
15	14 45	15 11	15 37	16 4	16 31	17 0	17 29	18 0	18 31	19 3	19 37	15
16	14 35	15 0	15 26	15 52	16 20	16 48	17 17	17 48	18 19	18 51	19 24	14
17	14 23	14 49	15 14	15 40	16 8	16 35	17 5	17 35	18 6	18 38	19 11	13
18	14 12	14 37	15 1	15 28	15 55	16 22	16 51	17 22	17 52	18 24	18 57	12
19	13 59	14 24	14 49	15 14	15 41	16 9	16 38	17 8	17 38	18 10	18 43	11
20	13 45	14 10	14 35	15 1	15 27	15 55	16 23	16 53	17 23	17 55	18 28	10
21	13 34	13 57	14 21	14 47	15 13	15 40	16 9	16 38	17 8	17 40	18 12	9
22	13 10	13 43	14 7	14 32	14 58	15 25	15 53	16 22	16 52	17 23	17 55	8
23	13 5	13 28	13 52	14 17	14 43	15 9	15 37	16 6	16 36	17 7	17 38	7
24	12 50	13 13	13 37	14 1	14 27	14 53	15 21	15 49	16 18	16 40	17 20	6
25	12 35	12 58	13 21	13 45	14 10	14 36	15 3	15 31	16 0	16 31	17 2	5
26	12 19	12 42	13 5	13 29	13 53	14 19	14 45	15 13	15 42	16 12	16 43	4
27	12 2	12 25	12 48	13 12	13 36	14 1	14 27	14 54	15 23	15 52	16 23	3
28	11 47	12 8	12 31	12 54	13 18	13 43	14 8	14 35	15 3	15 32	16 2	2
29	11 3	11 51	12 13	12 36	12 59	13 24	13 40	14 15	14 43	15 11	15 41	1
30	11 13	11 33	11 55	12 1	12 40	13 4	13 29	13 55	14 22	14 50	15 19	0

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 7.

Parallaxis Orbis ☿ in Tellure Addenda.

Anomalia Orbis Sig. 4.

Numerus Logarithmicus.

Grad.	958000	959000	960000	961000	962000	963000	964000	965000	966000	967000	968000	Grad.
	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	
0	22 7	22 42	23 17	23 53	24 31	25 9	25 48	26 28	27 14	27 52	28 35	30
1	22 4	22 38	23 14	23 5	24 28	25 6	25 46	26 26	27 8	27 50	28 34	29
2	21 59	22 34	23 10	23 46	24 24	25 3	25 43	26 23	27 5	27 48	28 32	28
3	21 54	22 29	23 5	23 42	24 20	24 59	25 39	26 20	27 2	27 45	28 30	27
4	21 49	22 24	23 0	23 37	24 15	24 55	25 35	26 16	26 59	27 42	28 27	26
5	21 43	22 18	22 54	23 32	24 10	24 49	25 30	26 11	26 54	27 38	28 23	25
6	21 36	22 12	22 48	23 26	24 4	24 44	25 24	26 6	26 41	27 33	28 19	24
7	21 29	22 5	22 41	23 19	23 57	24 37	25 18	26 1	26 44	27 28	28 14	23
8	21 22	21 57	22 34	23 12	23 50	24 29	25 11	25 54	26 37	27 23	28 8	22
9	21 18	21 49	22 20	23 4	23 42	24 2	25 4	25 46	26 30	27 15	28 1	21
10	21 4	21 40	22 17	22 55	23 34	24 14	24 56	25 38	26 22	27 8	27 54	20
11	20 55	21 31	22 8	22 46	23 25	24 5	24 47	25 30	26 14	26 50	27 46	19
12	20 45	21 21	21 58	22 36	23 15	22 55	24 37	25 20	26 4	26 50	27 37	18
13	20 34	21 10	21 47	22 25	23 4	23 45	24 27	25 10	25 54	26 40	27 27	17
14	20 23	20 59	21 30	22 14	22 53	23 34	24 15	24 59	25 43	26 30	27 17	16
15	20 11	20 47	21 24	22 2	22 41	23 22	24 3	24 47	25 32	26 18	27 5	15
16	19 59	20 34	21 11	21 49	22 28	23 9	23 51	24 34	25 10	25 6	26 50	14
17	19 45	20 21	20 57	21 35	22 14	22 55	23 37	24 21	25 5	25 52	26 40	13
18	19 31	20 7	20 43	21 21	22 0	22 41	23 23	24 6	24 51	25 38	26 26	12
19	19 17	19 52	20 28	21 6	21 45	22 26	23 8	23 51	24 30	25 22	26 10	11
20	19 1	19 35	20 13	20 50	21 29	22 10	22 51	23 35	24 20	25 7	25 54	10
21	18 45	19 20	19 50	20 34	21 12	21 52	22 34	23 19	24 2	24 49	25 37	9
22	18 20	19 3	19 30	20 17	20 55	21 35	22 17	23 0	23 44	24 31	25 19	8
23	18 11	18 46	19 21	19 58	20 36	21 17	21 58	22 41	23 25	24 12	25 0	7
24	17 53	18 27	19 2	19 39	20 17	20 57	21 38	22 21	23 5	23 52	24 40	6
25	17 34	18 8	18 42	19 20	19 57	20 37	21 17	22 0	22 44	23 30	24 18	5
26	17 15	17 48	18 23	18 59	19 36	20 16	20 56	21 38	22 22	23 8	23 56	4
27	16 54	17 27	18 2	18 38	19 15	19 53	20 33	21 16	21 59	22 45	23 32	3
28	16 33	17 6	17 40	18 15	18 52	19 30	20 10	20 52	21 35	22 20	23 7	2
29	16 12	16 44	17 1	17 52	18 29	19 7	19 40	20 27	21 10	21 54	22 41	1
30	15 45	16 21	16 54	17 28	18 4	18 41	19 20	20 1	20 43	21 28	22 14	0

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 7.

Parallaxis Orbis ☿ in Tellure Addenda.

Anomalia Orbis Sig. 5.

Grad.	947000	948000	949000	950000	951000	952000	953000	954000	955000	956000	957000	Grad.
	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	
0	11 13	11 33	11 55	12 17	12 40	13 4	13 29	13 55	14 22	14 50	15 19	30
1	10 55	11 15	11 36	11 57	12 20	12 44	13 8	13 34	14 1	14 28	14 56	29
2	10 37	10 56	11 17	11 38	12 0	12 23	12 47	13 12	13 38	14 5	14 33	28
3	10 18	10 37	10 57	11 18	11 40	12 2	12 25	12 50	13 15	13 42	14 9	27
4	9 59	10 18	10 37	10 58	11 19	11 41	12 3	12 27	12 52	13 18	13 44	26
5	9 40	9 58	10 17	10 37	10 57	11 18	11 40	12 4	12 28	12 53	13 19	25
6	9 20	9 37	9 56	10 15	10 35	10 56	11 17	11 40	12 3	12 28	12 53	24
7	9 0	9 17	9 35	9 53	10 12	10 32	10 53	11 15	11 38	12 2	12 27	23
8	8 39	8 56	9 13	9 31	9 49	10 9	10 29	10 50	11 12	11 35	11 59	22
9	8 18	8 34	8 51	9 8	9 26	9 45	10 4	10 25	10 46	11 8	11 31	21
10	7 57	8 12	8 28	8 45	9 2	9 20	9 39	9 58	10 19	10 40	11 3	20
11	7 35	7 50	8 5	8 21	8 38	8 55	9 13	9 32	9 51	10 12	10 34	19
12	7 13	7 27	7 42	7 57	8 13	8 30	8 47	9 5	9 24	9 43	10 4	18
13	6 51	7 4	7 18	7 33	7 48	8 4	8 20	8 37	8 55	9 14	9 34	17
14	6 29	6 41	6 54	7 8	7 23	7 37	7 53	8 9	8 26	8 44	9 3	16
15	6 6	6 18	6 30	6 43	6 57	7 11	7 26	7 41	7 57	8 14	8 32	15
16	5 43	5 54	6 6	6 18	6 31	6 44	6 58	7 12	7 27	7 43	8 0	14
17	5 19	5 30	5 41	5 52	6 4	6 17	6 30	6 43	6 57	7 12	7 28	13
18	4 56	5 5	5 16	5 26	5 37	5 49	6 1	6 14	6 27	6 40	6 55	12
19	4 31	4 40	4 50	5 0	5 10	5 21	5 32	5 44	5 56	6 9	6 22	11
20	4 7	4 16	4 25	4 33	4 43	4 53	5 3	5 13	5 25	5 36	5 48	10
21	3 43	3 51	3 59	4 7	4 15	4 24	4 33	4 43	4 53	5 3	5 14	9
22	3 19	3 26	3 33	3 40	3 47	3 55	4 3	4 12	4 21	4 31	4 41	8
23	2 55	3 0	3 7	3 13	3 19	3 26	3 33	3 41	2 49	3 57	4 6	7
24	2 30	2 35	2 40	2 45	· 51	2 57	3 3	3 10	3 17	3 24	3 31	6
25	2 5	2 9	2 14	2 18	2 23	2 28	2 33	2 39	2 44	2 50	2 57	5
26	1 40	1 43	1 47	1 50	1 54	1 58	2 3	2 7	2 12	2 16	2 21	4
27	1 15	1 17	1 20	1 22	1 26	1 20	1 32	1 35	1 39	1 42	1 46	3
28	0 50	0 52	0 54	0 55	0 57	0 59	1 2	1 3	1 6	1 8	1 11	2
29	0 25	0 26	0 27	0 28	0 29	0 30	0 31	0 32	0 33	0 34	0 35	1
30	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0

Numerus Logarithmicus.

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 6

Parallaxis Orbis ☿ in Tellure Addenda.

Anomalia Orbis Sig. 5.

Numerus Logarithmicus.

Grad.	958000	959000	960000	961000	962000	963000	964000	965000	966000	967000	968000	Grad.
	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	
0	15 49	16 21	16 54	17 28	18 4	18 41	19 20	20 1	20 43	21 27	22 14	30
1	15 26	15 57	16 29	17 3	17 38	18 15	18 54	19 34	20 16	21	21 45	29
2	14 2	15 33	16 [illegible]	16 38	17 12	17 49	18 20	19 0	19 47	20 31	21 16	28
3	14 38	15 8	15 43	16 11	16 45	17 21	17 58	18 37	19 18	20 1	20 45	27
4	14 12	14 42	15 12	15 44	15 17	16 52	17 29	18 5	18 47	19 29	20 13	26
5	13 46	14 15	14 44	15 16	15 48	16 22	16 58	17 30	18 15	18 56	19 39	25
6	13 12	13 47	14 17	14 47	15 19	15 52	16 27	17 4	17 42	18 23	19 55	24
7	12 52	13 19	13 47	14 17	14 48	15 21	15 55	16 31	17 8	17 48	18 29	23
8	12 24	12 50	13 18	13 47	14 17	14 48	15 22	15 50	16 33	17 11	17 52	22
9	11 55	12 21	12 47	13 15	13 44	14 15	14 47	15 21	15 56	16 34	17 13	21
10	11 26	11 51	12 16	12 43	13 11	13 41	14 12	14 45	15 19	15 56	16 34	20
11	10 56	11 20	11 44	12 10	12 37	13 6	13 36	14 8	14 41	15 16	15 53	19
12	10 25	10 48	11 12	11 37	12 3	12 30	12 59	13 3	14 2	14 36	15 11	18
13	9 44	10 16	10 38	11 2	11 27	11 54	12 21	12 51	13 22	13 54	14 28	17
14	9 22	0 43	10 5	10 27	10 51	11 16	11 43	12 11	12 40	13 11	13 44	10
15	8 50	9 10	9 30	9 52	10 14	10 38	11 3	11 30	11 57	12 27	12 58	15
16	8 17	8 36	8 55	9 15	9 37	9 59	10 23	10 48	11 14	11 42	12 12	14
17	7 44	8 1	8 19	8 38	8 58	9 19	9 42	10 5	10 30	10 57	11 24	13
18	7 10	7 26	7 43	8 1	8 19	8 39	9 0	9 2	9 45	10 10	10 30	12
19	6 35	6 51	7 6	7 23	7 40	7 58	8 17	8 38	8 59	9 22	9 45	11
20	6 1	6 15	6 29	6 44	7 0	7 17	7 34	7 53	8 13	8 34	8 55	10
21	5 26	5 39	5 51	6 5	6 10	6 34	6 51	7 8	7 26	7 45	8 5	0
22	4 51	5 2	5 13	5 26	5 38	5 52	6 6	6 22	6 38	6 55	7 13	8
23	4 15	4 25	4 35	4 45	4 57	5 0	5 22	5 35	5 49	6 4	6 20	7
24	3 39	3 48	3 56	4 6	4 15	4 2	4 37	4 48	5 0	5 13	5 2[illegible]	6
25	3 3	3 10	3 18	3 25	3 35	3 4	3 5[illegible]	4 1	4 11	4 22	4 32	5
26	2 27	2 32	2 30	2 44	2 51	2 58	3 5	3 13	3 21	3 3[illegible]	3 39	4
27	1 50	1 54	1 59	2 3	2 8	2 14	2 19	2 25	2 31	2 38	2 45	3
28	1 13	1 17	1 19	1 22	1 26	1 20	1 33	1 37	1 41	1 45	1 50	2
29	0 37	0 38	0 40	0 41	0 42	0 45	0 46	0 48	0 50	0 53	0 55	1
30	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0

Parallaxis Orbis Subtrahenda.

Anomalia Orbis Sig. 6.

MERCURII
Maxima Latitudo Geocentrica.

Anomalia Orbis Sig. o.

Grad.	947000	948000	949000	950000	951000	952000	953000	954000	955000	956000	957000	Grad.
	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	
0	1 35	1 36	1 38	1 29	1 41	1 43	1 44	1 46	1 48	1 50	1 52	30
1	1 35	1 35	1 38	1 39	1 41	1 43	1 44	1 46	1 48	1 50	1 52	29
2	1 35	1 36	1 38	1 39	1 41	1 43	1 44	1 46	1 48	1 50	1 52	28
3	1 35	1 30	1 38	1 39	1 41	1 43	1 45	1 46	1 48	1 50	1 52	27
4	1 35	1 36	1 38	1 39	1 41	1 43	1 45	1 46	1 48	1 50	1 52	26
5	1 35	1 36	1 38	1 40	1 41	1 43	1 45	1 47	1 48	1 50	1 52	25
6	1 35	1 36	1 38	1 40	1 41	1 43	1 45	1 47	1 48	1 50	1 52	24
7	1 35	1 36	1 38	1 40	1 41	1 43	1 45	1 47	1 49	1 50	1 52	23
8	1 35	1 36	1 38	1 40	1 42	1 43	1 45	1 47	1 49	1 51	1 52	22
9	1 35	1 36	1 38	1 40	1 42	1 43	1 45	1 47	1 49	1 51	1 53	21
10	1 35	1 37	1 38	1 40	1 42	1 44	1 45	1 47	1 49	1 51	1 53	20
11	1 35	1 37	1 38	1 40	1 42	1 44	1 45	1 47	1 49	1 51	1 53	19
12	1 35	1 37	1 38	1 40	1 42	1 44	1 45	1 47	1 49	1 51	1 53	18
13	1 35	1 37	1 38	1 40	1 42	1 44	1 45	1 47	1 49	1 51	1 53	17
14	1 35	1 37	1 38	1 40	1 42	1 44	1 45	1 47	1 49	1 51	1 53	16
15	1 35	1 37	1 39	1 40	1 42	1 44	1 46	1 48	1 49	1 51	1 53	15
16	1 35	1 37	1 39	1 40	1 42	1 44	1 46	1 48	1 50	1 51	1 53	14
17	1 35	1 37	1 39	1 41	1 42	1 44	1 46	1 48	1 50	1 52	1 53	13
18	1 35	1 37	1 39	1 41	1 42	1 44	1 46	1 48	1 50	1 52	1 54	12
19	1 35	1 37	1 39	1 41	1 43	1 44	1 46	1 48	1 50	1 52	1 54	11
20	1 36	1 37	1 30	1 41	1 43	1 44	1 46	1 48	1 50	1 52	1 54	10
21	1 36	1 37	1 39	1 41	1 43	1 45	1 46	1 48	1 50	1 52	1 54	9
22	1 36	1 38	1 39	1 41	1 43	1 45	1 47	1 48	1 50	1 52	1 54	8
23	1 36	1 38	1 39	1 41	1 43	1 45	1 47	1 49	1 50	1 52	1 54	7
24	1 36	1 38	1 40	1 41	1 43	1 45	1 47	1 49	1 51	1 52	1 54	6
25	1 36	1 38	1 40	1 41	1 43	1 45	1 47	1 49	1 51	1 53	1 55	5
26	1 36	1 38	1 40	1 42	1 43	1 45	1 47	1 49	1 51	1 53	1 55	4
27	1 36	1 38	1 40	1 42	1 44	1 45	1 47	1 49	1 51	1 53	1 55	3
28	1 37	1 38	1 40	1 42	1 44	1 46	1 47	1 49	1 51	1 53	1 55	2
29	1 37	1 38	1 40	1 42	1 44	1 46	1 48	1 50	1 51	1 53	1 55	1
30	1 37	1 39	1 40	1 42	1 44	1 46	1 48	1 50	1 52	1 54	1 56	0

Numerus Logarithmicus (column heads 947000–957000).

Anomalia Orbis Sig. 11.

MERCURII
Maxima Latitudo Geocentrica.

Anomalia Orbis Sig. 0.

Numerus Logarithmicus.

Grad.	958000	959000	960000	961000	962000	963000	964000	965000	966000	967000	968000	Grad.
	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	
0	1 54	1 56	1 57	1 59	2 1	2 4	2 6	2 8	2 10	2 12	2 15	30
1	1 54	1 50	1 57	1 59	2 1	2 4	2 6	2 8	2 10	2 12	2 15	29
2	1 54	1 56	1 57	1 59	2 1	2 4	2 6	2 8	2 10	2 13	2 15	28
3	1 54	1 56	1 58	1 50	2 2	2 4	2 6	2 8	2 10	2 13	2 15	27
4	1 54	1 56	1 58	2 0	2 2	2 4	2 6	2 8	2 10	2 13	2 15	26
5	1 54	1 56	1 58	2 0	2 2	2 4	2 6	2 8	2 10	2 13	2 15	25
6	1 54	1 56	1 58	2 0	2 2	2 4	2 6	2 8	2 10	2 13	2 15	24
7	1 54	1 56	1 58	2 0	2 2	2 4	2 6	2 8	2 10	2 13	2 15	23
8	1 54	1 56	1 58	2 0	2 2	2 4	2 6	2 8	2 11	2 13	2 15	22
0	1 54	1 56	1 58	2 0	2 2	2 4	2 6	2 8	2 11	2 13	2 15	21
10	1 55	1 57	1 58	2 0	2 2	2 4	2 7	2 9	2 11	2 13	2 15	20
11	1 55	1 57	1 59	2 0	2 2	2 5	2 7	2 9	2 11	2 13	2 15	19
12	1 55	1 57	1 59	2 1	2 3	2 5	2 7	2 9	2 11	2 13	2 15	18
13	1 55	1 57	1 59	2 1	2 3	2 5	2 7	2 9	2 11	2 13	2 15	17
14	1 55	1 57	1 59	2 1	3	2 5	2 7	2 9	2 11	2 13	2 15	16
15	1 55	1 57	1 59	2 1	2 3	2 5	2 7	2 9	2 11	2 13	2 15	15
16	1 55	1 57	1 59	2 1	2 3	2 5	2 7	2 9	2 11	2 13	2 15	14
17	1 55	1 57	1 59	2 1	2 3	2 5	2 7	2 9	2 11	2 14	2 16	13
18	1 56	1 57	1 59	2 1	2 3	2 5	2 7	2 9	2 12	2 14	2 16	12
19	1 56	1 58	2 0	2 2	2 4	2 6	2 8	2 10	2 12	2 14	2 16	11
20	1 56	1 58	2 0	2 2	2 4	2 6	2 8	2 10	2 12	2 14	2 16	10
21	1 56	1 58	2 0	2 2	2 4	2 6	2 8	2 10	2 12	2 14	2 16	9
22	1 56	1 58	2 0	2 2	2 4	2 6	2 8	2 10	2 12	2 14	2 17	8
23	1 56	1 58	2 0	2 2	2 4	2 6	2 8	2 10	2 13	2 15	2 17	7
24	1 56	1 58	2 0	2 2	2 4	6	2 8	2 11	2 13	2 15	2 17	6
25	1 5[illegible]	1 58	2 0	2 2	2 4	2 7	2 9	2 11	2 13	2 15	2 17	5
26	1 5[illegible]	[illegible]	2 1	2 3	2 5	2 7	2 9	2 11	2 13	2 15	2 17	4
27	1 57	1 59	2 1	2 3	2 5	2 7	2 9	2 11	2 13	2 16	2 18	3
28	1 57	1 59	2 1	2 3	2 5	2 7	2 9	2 12	2 14	2 16	2 18	2
29	1 57	1 59	2 1	2 3	2 5	2 7	2 10	2 12	2 14	2 16	2 18	1
30	1 58	2 0	2 2	2 4	2 6	2 8	2 10	2 12	2 14	2 16	2 18	0

Anomalia Orbis Sig. 11.

MERCURII
Maxima Latitudo Geocentrica.

Anomalia Orbis Sig. 1.

Numerus Logarithmicus.

Grad.	947000	948000	949000	950000	951000	952000	953000	954000	955000	956000	957000	Grad.
	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	
0	1 37	1 39	1 40	1 42	1 44	1 46	1 48	1 50	1 52	1 54	1 56	30
1	1 37	1 39	1 41	1 42	1 44	1 46	1 48	1 50	1 52	1 54	1 56	29
2	1 37	1 39	1 41	1 43	1 44	1 45	1 48	1 50	1 52	1 54	1 56	28
3	1 37	1 39	1 41	1 43	1 45	1 47	1 48	1 50	1 52	1 54	1 56	27
4	1 38	1 39	1 41	1 43	1 45	1 47	1 49	1 51	1 53	1 54	1 56	26
5	1 38	1 40	1 41	1 43	1 45	1 47	1 49	1 51	1 53	1 55	1 57	25
6	1 38	1 40	1 42	1 43	1 45	1 47	1 49	1 51	1 53	1 55	1 57	24
7	1 38	1 40	1 42	1 44	1 46	1 [illegible]	1 49	1 51	1 53	1 55	1 57	23
8	1 38	1 40	1 42	1 44	1 46	1 48	1 50	1 52	1 54	1 55	1 57	22
9	1 39	1 40	1 42	1 44	1 46	1 48	1 50	1 52	1 54	1 56	1 58	21
10	1 39	1 41	1 42	1 44	1 46	1 48	1 50	1 52	1 54	1 56	1 58	20
11	1 39	1 41	1 43	1 45	1 47	1 48	1 50	1 52	1 54	1 56	1 58	19
12	1 39	1 41	1 43	1 45	1 47	1 49	1 51	1 53	1 55	1 57	1 59	18
13	1 39	1 41	1 43	1 45	1 47	1 49	1 51	1 53	1 55	1 57	1 59	17
14	1 40	1 41	1 43	1 45	1 47	1 40	1 51	1 53	1 55	1 57	1 59	16
15	1 40	1 42	1 44	1 46	1 48	1 49	1 51	1 53	1 55	1 58	2 0	15
16	1 40	1 42	1 44	1 46	1 48	1 50	1 52	1 54	1 56	1 58	2 0	14
17	1 40	1 42	1 44	1 46	1 48	1 50	1 52	1 54	1 56	1 58	2 0	13
18	1 41	1 42	1 41	1 46	1 48	1 50	1 52	1 54	1 56	1 59	2 1	12
19	1 41	1 43	1 45	1 47	1 49	1 51	1 52	1 55	1 57	1 59	2 1	11
20	1 41	1 43	1 45	1 47	1 49	1 51	1 53	1 55	1 57	1 59	2 1	10
21	1 41	1 43	1 45	1 47	1 49	1 51	1 53	1 55	1 57	2 0	2 2	9
22	1 42	1 44	1 46	1 48	1 50	1 52	1 54	1 56	1 58	2 0	2 2	8
23	1 42	1 44	1 46	1 48	1 50	1 52	1 54	1 56	1 58	2 0	2 3	7
24	1 42	1 44	1 46	1 48	1 50	1 52	1 54	1 56	1 59	2 1	2 3	6
25	1 43	1 45	1 47	1 49	1 51	1 53	1 55	1 57	1 59	2 1	2 3	5
26	1 43	1 45	1 47	1 49	1 51	1 53	1 55	1 57	1 59	[illegible]	[illegible] 4	4
27	1 43	1 45	1 47	1 49	1 51	1 53	1 55	1 58	2 0	2 2	2 4	3
28	1 44	1 46	1 48	1 50	1 52	1 54	1 56	1 58	2 0	2 2	2 5	2
29	1 44	1 46	1 48	1 50	1 52	1 54	1 56	1 58	2 0	2 3	2 5	1
30	1 44	1 46	1 48	1 50	1 52	1 54	1 56	1 59	2 1	2 3	2 6	0

Anomalia Orbis Sig. 10.

MERCURII
Maxima Latitudo Geocentrica.

Anomalia Orbis Sig. 1.

Numerus Logarithmicus.

Grad.	958000	959000	960000	961000	962000	963000	964000	965000	966000	967000	968000	Grad.
	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	gr.	
0	1 58	2 0	2 2	2 4	2 6	2 8	2 10	2 12	2 14	2 16	2 18	30
1	1 58	2 0	2 2	2 4	2 6	2 8	2 10	2 12	2 14	2 17	2 19	29
2	1 58	2 0	2 2	2 4	2 6	2 8	2 10	2 13	2 15	2 17	2 19	28
3	1 58	2 0	2 2	2 4	2 6	2 9	2 11	2 13	2 15	2 17	2 19	27
4	1 59	2 1	2 3	2 5	2 7	2 9	2 11	2 13	2 15	2 18	2 20	26
5	1 59	2 1	2 3	2 5	2 7	2 9	2 11	2 13	2 16	2 18	2 20	25
6	1 59	2 1	2 3	2 5	2 7	2 9	2 12	2 14	2 16	2 18	2 20	24
7	1 59	2 1	2 3	2 6	2 8	2 10	2 12	2 14	2 16	2 19	2 21	23
8	2 0	2 2	2 4	2 6	2 8	2 10	2 12	2 14	2 17	2 19	2 21	22
9	2 0	2 2	2 4	2 6	2 8	2 10	2 13	2 15	2 17	2 19	2 21	21
10	2 0	2 2	2 4	2 6	2 9	2 11	2 13	2 15	2 17	2 20	2 22	20
11	2 0	2 2	2 5	2 7	2 9	2 11	2 13	2 15	2 18	2 20	2 22	19
12	2 1	2 3	2 5	2 7	2 9	2 11	2 14	2 16	2 18	2 20	2 23	18
13	2 1	2 3	2 5	2 7	2 10	2 12	2 14	2 16	2 18	2 21	2 23	17
14	2 1	2 4	2 6	2 8	2 10	2 12	2 14	2 17	2 19	2 21	2 23	16
15	2 2	2 4	2 6	2 8	2 10	2 12	2 15	2 17	2 19	2 22	2 24	15
16	2 2	2 4	2 6	2 8	2 11	2 13	2 15	2 17	2 20	2 22	2 24	14
17	2 2	2 4	2 7	2 9	2 11	2 13	2 16	2 18	2 20	2 22	2 25	13
18	2 3	2 5	2 7	2 9	2 11	2 14	2 16	2 18	2 21	2 23	2 25	12
19	2 3	2 5	2 7	2 10	2 12	2 14	2 16	2 19	2 21	2 23	2 26	11
20	2 3	2 6	2 8	2 10	2 12	2 15	2 17	2 19	2 22	2 24	2 26	10
21	2 4	2 6	2 8	2 10	2 13	2 15	2 17	2 20	2 22	2 24	2 27	9
22	2 4	2 6	2 9	2 11	2 13	2 15	2 18	2 20	2 23	2 25	2 27	8
23	2 5	2 7	2 9	2 11	2 14	2 16	2 18	2 21	2 23	2 25	2 28	7
24	2 5	2 7	2 10	2 12	2 14	2 17	2 19	2 21	2 24	2 26	2 28	6
25	2 6	2 8	2 10	2 12	2 15	2 17	2 19	2 22	2 24	2 27	2 29	5
26	2 6	2 8	2 11	2 13	15	2 18	2 20	2 22	2 25	2 27	2 30	4
27	2 6	2 9	2 11	2 13	2 16	2 18	2 20	2 23	2 25	2 28	2 30	3
28	2 7	2 9	2 11	2 14	2 16	2 19	2 21	2 23	2 26	2 28	2 31	2
29	2 7	2 10	2 12	2 14	17	2 19	2 21	2 24	2 27	2 29	2 31	1
30	2 7	2 10	2 12	2 15	2 17	2 20	2 22	2 25	2 27	2 30	2 32	0

Anomalia Orbis Sig. 10.

MERCURII
Maxima Latitudo Geocentrica.

Anomalia Orbis Sig. 2.

Numerus Logarithmicus.

Grad.	947000		948000		949000		950000		951000		952000		953000		954000		955000		956000		957000		Grad.
	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	gr.	'	
0	1	44	1	46	1	48	1	50	1	52	1	55	1	57	1	59	2	1	2	3	2	6	30
1	1	45	1	47	1	49	1	51	1	53	1	55	1	57	1	59	2	1	2	4	2	6	29
2	1	45	1	47	1	49	1	51	1	53	1	55	1	57	2	0	2	2	2	4	2	6	28
3	1	45	1	47	1	49	1	51	1	53	1	56	1	58	2	0	2	2	2	5	2	7	27
4	1	46	1	48	1	50	1	52	1	54	1	56	1	58	2	1	2	3	2	5	2	7	26
5	1	46	1	48	1	50	1	52	1	54	1	57	1	59	2	1	2	3	2	6	2	8	25
6	1	46	1	48	1	50	1	53	1	55	1	57	1	59	2	2	2	4	2	6	2	9	24
7	1	47	1	49	1	51	1	53	1	55	1	57	2	0	2	2	2	4	2	7	2	9	23
8	1	47	1	49	1	51	1	53	1	56	1	58	2	0	2	3	2	5	2	7	2	10	22
9	1	47	1	50	1	52	1	54	1	56	1	58	2	1	2	3	2	5	2	8	2	10	21
10	1	48	1	50	1	52	1	54	1	57	1	59	2	1	2	4	2	6	2	8	2	11	20
11	1	48	1	50	1	52	1	55	1	57	1	59	2	2	2	4	2	6	2	9	2	11	19
12	1	49	1	51	1	53	1	55	1	58	2	0	2	2	2	5	2	7	2	9	2	12	18
13	1	40	1	51	1	53	1	56	1	58	2	0	2	3	2	5	2	8	2	10	2	13	17
14	1	59	1	52	1	54	1	56	1	59	2	1	2	3	2	0	2	8	2	11	2	13	16
15	1	50	1	52	1	54	1	57	1	59	2	1	2	4	2	6	2	9	2	11	2	14	15
16	1	50	1	53	1	55	1	57	2	0	2	2	2	4	2	7	2	9	2	12	2	14	14
17	1	51	1	53	1	55	1	58	2	0	2	3	2	5	2	7	2	10	2	12	2	15	13
18	1	51	1	54	1	56	1	58	2	1	2	3	2	6	2	8	2	11	2	13	2	16	12
19	1	52	1	54	1	56	1	59	2	1	2	4	2	6	2	8	2	11	2	14	2	16	11
20	1	52	1	55	1	57	1	59	2	2	2	4	2	7	2	9	2	12	2	14	2	17	10
21	1	53	1	55	1	57	2	0	2	2	2	5	2	7	2	10	2	12	2	15	2	17	9
22	1	53	1	56	1	58	2	0	2	3	2	5	2	8	2	10	2	13	2	16	2	18	8
23	1	54	1	56	1	55	2	1	2	3	2	6	2	9	2	11	2	14	2	16	2	19	7
24	1	54	1	57	1	59	2	2	2	4	2	7	2	9	2	12	2	14	2	17	2	20	6
25	1	55	1	57	2	0	2	2	2	5	2	7	2	10	2	12	2	15	2	18	2	21	5
26	1	55	1	58	2	0	2	3	2	5	2	8	2	10	2	13	2	16	2	19	2	21	4
27	1	56	1	58	2	1	2	3	2	6	2	8	2	11	2	14	2	17	2	19	2	22	3
28	1	56	1	59	2	1	2	4	2	6	2	9	2	12	2	15	2	17	2	20	2	23	2
29	1	57	1	59	2	2	2	4	2	7	2	10	2	13	2	15	2	18	2	21	2	24	1
30	1	57	2	0	2	3	2	5	2	8	2	10	2	13	2	16	2	19	2	22	2	25	0

Anomalia Orbis Sig. 9.

MERCURII
Maxima Latitudo Geocentrica.

Anomalia Orbis Sig. 2.

Numerus Logarithmicus.

Grad.	958000	959000	960000	961000	962000	963000	964000	965000	966000	967000	968000	Grad.
	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	
0	2 8	2 10	2 12	2 15	2 17	2 20	2 22	2 25	2 27	2 29	2 32	30
1	2 8	2 11	2 13	2 15	2 18	2 20	2 23	2 25	2 28	2 30	2 33	29
2	2 9	2 11	2 13	2 16	2 18	2 21	2 23	2 26	2 28	2 31	2 33	28
3	2 9	2 12	2 14	2 16	2 19	2 21	2 24	2 26	2 29	2 31	2 34	27
4	2 10	2 12	2 15	2 17	2 20	2 22	2 24	2 27	2 30	2 32	2 35	26
5	2 10	2 13	2 15	2 17	2 20	2 23	2 25	2 28	2 30	2 33	2 35	25
6	2 11	2 13	2 16	2 18	2 21	2 23	2 26	2 28	2 31	2 34	2 36	24
7	2 11	2 14	2 16	2 19	2 21	2 24	2 26	2 29	2 32	2 34	2 37	23
8	2 12	2 14	2 17	2 19	2 22	2 25	2 27	2 30	2 32	2 35	2 38	22
9	2 12	2 15	2 18	2 20	2 23	2 25	2 28	2 30	2 33	2 36	2 38	21
10	2 13	2 16	2 18	2 21	2 23	2 26	2 29	2 31	2 34	2 37	2 39	20
11	2 14	2 16	2 19	2 21	2 24	2 27	2 29	2 32	2 35	2 37	2 40	19
12	2 14	2 17	2 19	2 22	2 25	2 27	2 30	2 33	2 35	2 38	2 41	18
13	2 15	2 18	2 20	2 23	2 25	2 28	2 31	2 33	2 36	2 39	2 42	17
14	2 16	2 18	2 21	2 23	2 26	2 29	2 32	2 34	2 37	2 40	2 43	16
15	2 16	2 19	2 22	2 24	2 27	2 30	2 32	2 35	2 38	2 41	2 44	15
16	2 17	2 20	2 22	2 25	2 28	2 30	2 33	2 36	2 39	2 42	2 44	14
17	2 18	2 20	2 23	2 26	2 28	2 31	2 34	2 37	2 40	2 42	2 45	13
18	2 18	2 21	2 24	2 26	2 29	2 32	2 35	2 38	2 40	2 43	2 46	12
19	2 19	2 22	2 24	2 27	2 30	2 33	2 36	2 38	2 41	2 44	2 47	11
20	2 20	2 22	2 25	2 28	2 31	2 34	2 36	2 39	2 41	2 45	2 48	10
21	2 20	2 23	2 26	2 29	2 32	2 34	2 37	2 40	2 43	2 46	2 49	9
22	2 21	2 24	2 27	2 30	2 32	2 35	2 38	2 41	2 44	2 47	2 50	8
23	2 22	2 25	2 28	2 30	2 33	2 36	2 39	2 42	2 45	2 48	2 51	7
24	2 22	2 26	2 28	2 31	2 34	2 37	2 40	2 43	2 46	2 49	2 52	6
25	2 23	2 26	2 29	2 32	2 35	2 38	2 41	2 44	2 47	2 50	2 53	5
26	2 24	2 27	2 30	2 33	2 36	2 39	2 42	2 45	2 48	2 51	2 55	4
27	2 25	2 28	2 31	2 34	2 37	2 40	2 43	2 46	2 49	2 53	2 56	3
28	2 26	2 29	2 32	2 35	2 38	2 41	2 44	2 47	2 50	2 54	2 57	2
29	2 27	2 30	2 33	2 36	2 39	2 42	2 45	2 48	2 52	2 55	2 58	1
30	2 27	2 31	2 34	2 37	2 40	2 43	2 46	2 49	2 53	2 56	2 59	0

Anomalia Orbis Sig. 9.

MERCURII
Maxima Latitudo Geocentrica.

Anomalia Orbis Sig. 3.

Numerus Logarithmicus.

Grad.	947000	948000	949000	950000	951000	952000	953000	954000	955000	956000	957000	Grad.
	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	gr. '	
0	1 57	2 0	2 3	2 5	2 8	2 11	2 13	2 16	2 19	2 22	2 25	30
1	1 58	2 1	2 3	2 6	2 8	2 11	2 14	2 17	2 20	2 23	2 25	29
2	1 59	2 1	2 4	2 6	2 9	2 12	2 15	2 18	2 21	2 23	2 26	28
3	1 59	2 2	2 4	2 7	2 10	2 12	2 15	2 18	2 21	2 24	2 27	27
4	2 0	2 2	2 5	2 8	2 11	2 13	2 16	2 19	2 22	2 25	2 28	26
5	2 0	2 3	2 0	2 8	2 11	2 14	2 17	2 20	2 23	2 26	2 29	25
6	2 1	2 4	2 6	2 9	2 12	2 15	2 18	2 21	2 24	2 27	2 30	24
7	2 2	2 4	2 7	2 10	2 13	2 16	2 18	2 21	2 24	2 28	2 31	23
8	2 2	2 5	2 8	2 11	2 13	2 10	2 19	2 22	2 25	2 28	2 32	22
9	2 3	2 6	2 8	2 11	2 14	2 17	2 20	2 23	2 26	2 29	2 33	21
10	2 3	2 6	2 9	2 22	2 15	2 18	2 21	2 24	2 27	2 30	2 34	20
11	2 4	2 7	2 10	2 13	2 16	2 19	2 22	2 25	2 28	2 31	2 35	19
12	2 5	2 8	2 10	2 13	2 16	2 19	2 23	2 26	2 29	2 32	2 36	18
13	2 5	2 8	2 11	2 14	2 17	2 20	2 23	2 27	2 30	2 33	2 37	17
14	2 6	2 9	2 12	2 15	2 18	2 21	2 24	2 28	2 31	2 34	2 38	16
15	2 7	2 10	2 13	2 16	2 19	2 22	2 25	2 28	2 32	2 35	2 39	15
16	2 7	2 10	2 13	2 16	2 20	2 23	2 26	2 20	2 33	2 36	2 40	14
17	2 8	2 11	2 14	2 17	2 20	2 24	2 27	2 30	2 34	2 37	2 41	13
18	2 9	2 12	2 15	2 18	2 21	2 25	2 28	2 31	2 35	2 38	2 42	12
19	2 9	2 13	2 16	2 19	2 22	2 25	2 29	2 32	2 36	2 39	2 43	11
20	2 10	2 13	2 16	2 20	2 23	2 26	2 30	2 33	2 37	2 40	2 44	10
21	2 11	2 14	2 17	2 20	2 24	2 27	2 31	2 34	2 38	2 41	2 45	9
22	2 12	2 15	2 18	2 21	2 25	2 28	2 32	2 35	2 39	2 42	2 46	8
23	2 12	2 16	2 19	2 22	2 26	2 29	2 33	2 36	2 40	2 44	2 48	7
24	2 13	2 16	2 20	2 23	2 26	2 [illegible]	2 34	2 37	2 41	2 45	2 49	6
25	2 14	2 17	2 20	2 24	2 27	2 31	2 35	2 38	2 42	2 46	2 50	5
26	2 15	2 18	2 21	2 25	2 28	2 32	2 36	2 39	2 43	2 47	2 51	4
27	2 15	2 19	2 22	2 26	2 20	2 33	2 37	2 40	2 44	2 48	2 52	3
28	2 16	2 10	2 23	2 27	2 30	2 34	2 38	2 41	2 45	2 50	2 54	2
29	2 17	2 20	2 24	2 27	2 31	2 35	2 39	2 43	2 47	2 51	2 55	1
30	2 18	2 21	2 25	2 28	2 32	2 36	2 40	2 44	2 48	2 52	2 56	0

Anomalia Orbis Sig. 8.

MERCURII
Maxima Latitudo Geocentrica.

Anomalia Orbis Sig. 3.

Numerus Logarithmicus.

Grad.	958000	959000	960000	961000	962000	963000	964000	965000	966000	967000	968000	Grad.
	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	
0	2 28	2 31	2 34	2 37	2 40	2 43	2 46	2 49	2 53	2 56	2 59	30
1	2 28	2 31	2 35	2 38	2 41	2 44	2 47	2 50	2 54	2 57	3 0	29
2	2 29	2 32	2 36	2 39	2 42	2 45	2 48	2 52	2 55	2 58	3 2	28
3	2 30	2 33	2 37	2 40	2 43	2 46	2 49	2 53	2 56	3 0	3 3	27
4	2 31	2 34	2 38	2 41	2 44	2 47	2 50	2 54	2 57	3 1	3 4	26
5	2 32	2 35	2 39	2 42	2 45	2 48	2 52	2 55	2 59	3 2	3 6	25
6	2 33	2 36	2 40	2 43	2 46	2 49	2 52	2 56	3 0	3 3	3 7	24
7	2 34	2 37	2 41	2 44	2 47	2 51	2 54	2 58	3 1	3 5	3 8	23
8	2 35	2 38	2 42	2 45	2 48	2 52	2 55	2 59	3 2	3 6	3 10	22
9	2 36	2 39	2 43	2 46	2 49	2 53	2 57	3 0	3 4	3 8	3 11	21
10	2 37	2 40	2 44	2 47	2 51	2 54	2 58	3 1	3 5	3 9	3 13	20
11	2 38	2 41	2 45	2 48	2 52	2 55	2 59	3 3	3 7	3 10	3 14	19
12	2 39	2 42	2 46	2 49	2 53	2 57	3 0	3 4	3 8	3 12	3 16	18
13	2 40	2 43	2 47	2 51	2 54	2 58	3 2	3 6	3 9	3 13	3 17	17
14	2 41	2 45	2 48	2 52	2 56	2 59	3 3	3 7	3 11	3 15	3 19	16
15	2 42	2 46	2 49	2 53	2 57	3 1	3 5	3 8	2 12	3 17	3 21	15
16	4 43	2 47	2 51	2 54	2 58	3 2	3 6	3 10	3 14	3 18	3 22	14
17	2 44	2 48	2 52	2 56	2 59	3 3	3 7	3 11	3 16	3 20	3 24	13
18	2 45	2 49	2 53	2 57	3 1	3 5	3 9	3 13	3 17	3 21	3 26	12
19	2 47	2 50	2 54	2 58	3 2	3 6	3 10	3 15	3 19	3 23	3 27	11
20	2 48	2 52	2 56	3 0	3 4	3 8	3 12	3 16	3 20	3 25	3 29	10
21	2 49	2 53	2 57	3 1	3 5	3 9	3 13	3 18	3 22	3 27	3 31	9
22	2 50	2 54	2 58	3 2	3 6	3 11	3 15	3 19	3 24	3 28	3 33	8
23	2 51	2 55	3 0	3 4	3 8	3 12	3 17	3 21	3 26	3 30	3 35	7
24	2 53	2 57	3 1	3 5	3 9	3 14	3 18	3 23	3 27	3 32	3 37	6
25	2 54	2 58	3 2	3 7	3 11	3 15	3 20	3 25	3 20	3 34	3 39	5
26	2 55	2 59	3 4	3 8	3 12	3 17	3 22	3 26	3 31	3 30	3 41	4
27	2 57	3 1	3 5	3 10	3 14	3 19	3 23	3 28	3 33	3 38	3 42	3
28	2 58	3 2	3 7	3 11	3 16	3 20	3 25	3 30	3 35	3 40	3 45	2
29	2 59	3 4	3 8	3 12	3 17	3 22	3 27	3 32	3 37	3 42	3 47	1
30	3 1	3 5	3 10	3 14	3 19	3 24	3 29	3 34	3 39	3 44	3 49	0

Anomalia Orbis Sig. 8.

MERCURII
Maxima Latitudo Geocentrica.

Anomalia Orbis Sig. 4.

Grad.	947000		948000		949000		950000		951000		952000		953000		954000		955000		956000		957000		Grad.
	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	gr.	′	
0	2	18	2	21	2	25	2	28	2	32	2	36	2	40	2	44	2	48	2	52	2	56	30
1	2	18	2	22	2	26	2	29	2	33	2	37	2	41	2	45	2	49	2	53	2	57	29
2	2	19	2	23	2	26	2	30	2	34	2	38	2	42	2	46	2	50	2	54	2	59	28
3	2	20	2	24	2	27	2	31		35	2	39	2	43	2	47	2	51	2	56	3	0	27
4	2	21	2	24	2	28	2	32	2	36	2	40	2	44	2	48	2	52	2	57	3	1	26
5	2	22	2	25	2	29	2	33	2	37	2	41	2	45	2	49	2	54	2	58	3	3	25
6	2	22	2	26	2	30	2	34	2	38	2	42	2	46	2	50	2	55	2	59	3	4	24
7	2	23	2	27	2	31	2	35	2	39	2	43	2	47	2	52	2	56	3	1	3	6	23
8	2	24	2	28	2	32	2	36	2	40	2	44	2	48	2	53	2	57	3	2	3	7	22
9	2	25	2	29	2	33	2	37	2	41	2	45	2	50	2	54	2	59	3	3	3	8	21
10	2	26	2	30	2	34	2	38	2	42	2	46	2	51	2	55	3	0	3	5	3	10	20
11	2	26	2	30	2	35	2	39	2	43	2	47	2	52	2	56	3	1	3	6	3	11	19
12	2	27	2	31	2	35	2	40	2	44	2	48	2	53	2	58	3	3	3	8	3	13	18
13	2	28	2	32	2	36	2	41	2	45	2	49	2	54	2	59	3	4	3	9	3	14	17
14	2	29	2	33	2	37	2	42	2	46	2	51	2	55	3	0	3	5	3	10	3	16	16
15	2	30	2	34	2	38	2	43	2	47	2	52	2	56	3	1	3	6	3	12	3	17	15
16	2	31	2	35	2	39	2	43	2	48	2	53	2	58	3	3	3	8	3	13	3	19	14
17	2	31	2	36	2	40	2	44	2	49	2	54	2	59	3	4	3	9	3	14	3	20	13
18	2	32	2	36	2	41	2	45	2	50	2	55	3	0	3	5	3	10	3	16	3	21	12
19	2	33	2	37	2	42	2	46	2	51	2	56	3	1	3	6	3	12	3	17	3	23	11
20	2	34	2	38	2	43	2	47	2	52	2	57	3	2	3	8	3	13	3	19	3	24	10
21	2	35	2	39	2	44	2	48	2	53	2	58	3	3	3	9	3	14	3	20	3	26	0
22	2	35	2	40	2	44	2	40	2	54	2	59	3	5	3	10	3	16	3	21	3	27	8
23	2	36	2	41	2	45	2	50	2	55	3	0	3	6	3	11	3	17	3	23	3	29	7
24	2	37	2	42	2	46	2	51	2	56	3	2	3	7	3	13	3	18	3	24	3	30	6
25	2	38	2	42	2	47	2	52	2	57	3	3	3	8	3	14	3	20	3	25	3	32	5
26	2	38	2	43	2	48	2	53	2	58	3	4	3	9	3	15	3	21	3	27	3	33	4
27	2	39	2	44	2	49	2	54	2	59	3	5	3	10	3	16	3	22	3	28	3	35	3
28	2	40	2	45	2	50	2	55	3	0	3	6	3	11	3	17	3	23	3	30	3	36	2
29	2	41	2	46	2	51	2	56	3	1	3	7	3	13	3	19	3	25	3	31	3	38	1
30	2	41	2	46	2	51	2	57	3	2	3	8	3	14	3	20	3	26	3	33	3	39	0

Numerus Logarithmicus.

Anomalia Orbis Sig. 7.

MERCURII
Maxima Latitudo Geocentrica.

Anomalia Orbis Sig. 4.

Numerus Logarithmicus.

Grad.	958000 gr. '	959000 gr. '	960000 gr. '	961000 gr. '	962000 gr. '	963000 gr. '	964000 gr. '	965000 gr. '	966000 gr. '	967000 gr. '	968000 gr. '	Grad.
0	3 1	3 5	3 10	3 14	3 19	3 24	3 29	3 34	3 39	3 44	3 49	30
1	3 2	3 6	3 11	3 16	3 21	3 25	3 31	3 36	3 41	3 46	3 52	29
2	3 3	3 8	3 12	3 17	3 22	3 27	3 32	3 38	3 43	3 48	3 54	28
3	3 5	3 9	3 14	3 19	3 24	3 29	3 34	3 40	3 45	3 50	3 56	27
4	3 6	3 11	3 16	3 21	3 26	3 31	3 30	3 42	3 47	3 53	3 58	26
5	3 8	3 13	3 17	3 22	3 28	3 33	3 38	3 44	3 49	3 55	4 1	25
6	3 9	3 14	3 19	3 24	3 29	3 35	3 40	3 46	3 52	3 57	4 3	24
7	3 10	3 15	3 21	3 26	3 31	3 37	3 42	3 48	3 54	4 0	4 6	23
8	3 12	3 17	3 22	3 27	3 33	3 39	3 44	3 50	3 56	4 2	4 8	22
9	3 13	3 19	3 24	3 29	3 35	3 41	3 46	3 52	3 58	4 5	4 11	21
10	3 15	3 20	3 25	3 31	3 37	3 43	3 48	3 54	4 1	4 7	4 13	20
11	3 16	3 22	3 27	3 33	3 39	3 44	3 51	3 57	4 3	4 10	4 16	19
12	3 18	3 23	3 29	3 35	3 40	3 47	3 53	3 59	4 6	4 12	4 19	18
13	3 20	3 25	3 31	3 36	3 42	3 49	3 55	4 1	4 8	4 15	4 22	17
14	3 21	3 27	3 32	3 38	3 44	3 51	3 57	4 4	4 10	4 17	4 24	16
15	3 23	3 28	3 34	3 40	3 46	3 53	3 59	4 6	4 13	4 20	4 27	15
16	3 24	3 30	3 36	3 42	3 48	3 55	4 2	4 8	4 15	4 23	4 30	14
17	3 26	3 32	3 38	3 44	3 50	3 57	4 4	4 11	4 18	4 25	4 33	13
18	3 27	3 33	3 40	3 46	3 52	3 59	4 6	4 13	4 21	4 28	4 36	12
19	3 29	3 35	3 41	3 48	3 54	4 1	4 8	4 16	4 23	4 31	4 39	11
20	3 31	3 37	3 43	3 50	3 57	4 3	4 11	4 18	4 26	4 34	4 42	10
21	3 32	3 38	3 45	3 52	3 59	4 6	4 13	4 21	4 29	4 37	4 45	9
22	3 34	3 40	3 47	3 54	4 1	4 8	4 16	4 23	4 31	4 40	4 48	8
23	3 35	3 42	3 49	3 56	4 3	4 10	4 18	4 26	4 34	4 42	4 51	7
24	3 37	3 44	3 51	3 58	4 5	4 12	4 20	4 28	4 37	4 45	4 54	6
25	3 39	3 45	3 52	4 0	4 7	4 15	4 23	4 31	4 40	4 48	4 58	5
26	3 40	3 47	3 54	4 2	4 9	4 17	4 25	4 34	4 42	4 51	5 1	4
27	3 42	3 49	3 56	4 3	4 11	4 19	4 28	4 36	4 45	4 54	5 4	3
28	3 43	3 50	3 58	4 5	4 13	4 21	4 30	4 39	4 48	4 57	5 7	2
29	3 45	3 52	4 0	4 7	4 15	4 24	4 42	4 41	4 51	5 0	5 10	1
30	3 46	3 54	4 1	4 9	4 17	4 26	4 35	4 44	4 53	5 3	5 14	0

Anomalia Orbis Sig. 7.

MERCURII
Maxima Latitudo Geocentrica.

Anomalia Orbis Sig. 5.

Numerus Logarithmicus.

Grad.	947000	948000	949000	950000	951000	952000	953000	954000	955000	956000	957000	Grad.
	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	gr. ′	
0	2 41	2 46	2 51	2 57	3 2	3 8	3 14	3 20	3 26	3 33	3 39	30
1	2 42	2 47	2 52	2 58	3 3	3 9	3 15	3 21	3 27	3 34	3 41	29
2	2 43	2 48	2 53	2 58	3 4	3 10	3 16	3 22	3 28	3 35	3 42	28
3	2 44	2 49	2 54	2 59	3 5	3 11	3 17	3 23	3 30	3 36	3 43	27
4	2 44	2 49	2 55	3 0	3 6	3 12	3 18	3 24	3 31	3 38	3 45	26
5	2 45	2 50	2 55	3 1	3 7	3 13	3 19	3 25	3 32	3 39	3 46	25
6	2 46	2 51	2 56	3 2	3 7	3 14	3 20	3 26	3 33	3 40	3 48	24
7	2 46	2 51	2 57	3 2	3 8	3 14	3 21	3 27	3 34	3 41	3 49	23
8	2 47	2 52	2 57	3 3	3 9	3 15	3 22	3 28	3 35	3 43	3 50	22
9	2 47	2 53	2 58	3 4	3 10	3 16	3 23	3 29	3 36	3 44	3 51	21
10	2 48	2 53	2 59	3 5	3 11	3 17	3 24	3 30	3 37	3 45	3 52	20
11	2 48	2 54	2 59	3 5	3 11	3 18	3 24	3 31	3 38	3 46	3 54	19
12	2 49	2 54	3 0	3 6	3 12	3 19	3 25	3 3[illegible]	3 39	3 47	3 55	18
13	2 49	2 55	3 1	3 7	3 13	3 10	3 26	3 33	3 40	3 48	3 56	17
14	2 50	2 55	3 1	3 7	3 13	3 20	3 27	3 34	3 41	3 49	3 57	16
15	2 50	2 56	3 2	3 8	3 14	3 21	3 28	3 34	3 42	3 50	3 58	15
16	2 51	2 56	3 2	3 8	3 15	3 21	3 28	3 35	3 42	3 51	3 59	14
17	2 51	2 57	3 3	3 9	3 15	3 22	3 29	3 36	3 43	3 51	4 0	13
18	2 52	2 57	3 3	3 9	3 16	3 22	3 20	3 37	3 44	3 52	4 1	12
19	2 52	2 58	3 3	3 10	3 16	3 23	3 30	3 37	3 45	3 53	4 2	11
20	2 52	2 58	3 4	3 10	3 16	3 23	3 30	3 38	3 45	3 53	4 2	10
21	2 53	2 58	3 4	3 10	3 17	3 24	3 31	3 38	3 46	3 54	4 3	9
22	2 53	2 59	3 4	3 11	3 17	3 24	3 31	3 39	3 46	3 55	4 4	8
23	2 53	2 59	3 5	3 11	3 17	3 24	3 31	3 39	3 47	3 55	4 4	7
24	2 53	2 59	3 5	3 11	3 18	3 25	3 32	3 40	3 47	3 56	4 5	6
25	2 53	2 59	3 5	3 12	3 18	3 25	3 32	3 40	3 47	3 56	4 5	5
26	2 54	2 59	3 5	3 12	3 18	3 25	3 32	3 40	3 48	3 56	4 5	4
27	2 54	3 0	3 6	3 12	3 19	3 25	3 33	3 41	3 48	3 5[illegible]	4 6	3
28	2 54	3 0	3 6	3 12	3 19	3 26	3 32	3 41	3 48	3 5[illegible]	4 6	2
29	2 54	3 0	3 6	3 12	3 19	3 26	3 32	3 41	3 48	3 5	4 6	1
30	2 54	3 0	3 6	3 12	3 19	3 26	3 3[illegible]	3 41	3 48	3 5[illegible]	4 6	0

Anomalia Orbis Sig. 6.

MERCURII
Maxima Latitudo Geocentrica.

Anomalia Orbis Sig. 5.

Numerus Logarithmicus.

Grad.	958000 gr. '	959000 gr. '	960000 gr. '	961000 gr. '	962000 gr. '	963000 gr. '	964000 gr. '	965000 gr. '	966000 gr. '	967000 gr. '	968000 gr. '	Grad.
0	3 46	3 54	4 1	4 9	4 17	4 26	4 35	4 44	4 53	5 3	5 14	30
1	3 48	3 55	4 3	4 11	4 19	4 28	4 37	4 40	4 56	5 6	5 17	29
2	3 49	3 57	4 5	4 13	4 21	4 30	4 40	4 49	4 59	5 9	5 20	28
3	3 51	3 58	4 6	4 15	4 23	4 33	4 42	4 52	5 2	5 12	5 23	27
4	3 52	4 0	4 8	4 17	4 25	4 35	4 44	4 54	5 4	5 15	5 27	26
5	3 54	4 2	4 10	4 18	4 27	4 37	4 47	4 57	5 7	5 18	5 30	25
6	3 55	4 3	4 12	4 20	4 29	4 39	4 49	4 59	5 10	5 21	5 33	24
7	3 57	4 5	4 13	4 22	4 31	4 41	4 51	5 2	5 13	5 24	5 36	23
8	3 58	4 6	4 15	4 24	4 33	4 42	4 52	5 4	5 15	5 27	5 39	22
9	3 59	4 8	4 16	4 25	4 35	4 45	4 55	5 6	5 18	5 30	5 42	21
10	4 1	4 9	4 18	4 27	4 37	4 47	4 57	5 9	5 20	5 33	5 45	20
11	4 2	4 10	4 19	4 29	4 39	4 49	4 59	5 11	5 23	5 35	5 48	19
12	4 3	4 12	4 21	4 30	4 40	4 51	5 1	5 13	5 25	5 38	5 51	18
13	4 4	4 13	4 22	4 32	4 42	4 52	5 3	5 15	5 27	5 40	5 54	17
14	4 5	4 14	4 23	4 33	4 43	4 54	5 5	5 17	5 30	5 43	5 57	16
15	4 6	4 15	4 25	4 34	4 45	4 56	5 7	5 19	5 32	5 45	5 59	15
16	4 7	4 16	4 26	4 36	4 46	4 57	5 9	5 21	5 34	5 47	6 2	14
17	4 8	4 17	4 27	4 37	4 47	4 59	5 10	5 23	5 36	5 50	6 4	13
18	4 9	4 18	4 28	4 38	4 49	5 0	5 12	5 25	5 38	5 52	6 6	12
19	4 10	4 19	4 29	4 39	4 50	5 1	5 13	5 26	5 39	5 54	6 8	11
20	4 11	4 20	4 30	4 40	4 51	5 3	5 15	5 27	5 41	5 55	6 10	10
21	4 12	4 21	4 31	4 41	4 52	5 4	5 16	5 29	5 42	5 57	6 12	9
22	4 12	4 22	4 32	4 42	4 53	5 5	5 17	5 30	5 44	5 58	6 14	8
23	4 13	4 22	4 32	4 43	4 54	5 6	5 18	5 31	5 45	6 0	6 15	7
24	4 13	4 23	4 33	4 43	4 54	5 6	5 19	5 32	5 46	6 1	6 17	6
25	4 13	4 23	4 33	4 44	4 55	5 7	5 19	5 33	5 47	6 2	6 18	5
26	4 14	4 23	4 34	4 44	4 55	5 8	5 20	5 33	5 48	6 2	6 19	4
27	4 14	4 24	4 34	4 45	4 56	5 8	5 20	5 34	5 48	6 3	6 19	3
28	4 14	4 24	4 34	4 45	4 56	5 8	5 21	5 35	5 49	6 3	6 20	2
29	4 14	4 24	4 34	4 45	4 56	5 8	5 21	5 35	5 49	6 4	6 20	1
30	4 14	4 24	4 34	4 45	4 56	5 8	5 21	5 35	5 49	6 4	6 20	0

Anomalia Orbis Sig. 6.

Loca 35. inſigniorum juxta Eclipticam Stellarum ſecundum Longitudinem & Latitudinem, cum quibus Luna, & reliqui Planetæ corporali congreſſu jungi poſſunt, Ex obſervationibus & calculo Tychonis Brahæi *ad Annum* M. DC. *completum, ſupputata.*

NOMINA STELLARUM.	Longitudo G.	M.	S.	Latitudo G.	'		Mag.
Media & lucidior in nexu boreo ♓	21	16	♈	5	21	B.	4
Lucida in Capite ♈	2	6	♉	9	57	B.	3
Quæ eſt 5. ✳ ♈	3	20	♉	5	42 ſ.	B.	6
Præcedens trium in Cauda ♈	15	15	♉	1	46 ſ.	B.	4
Media & lucida Pleiadum	24	24	♉	4	0	B.	5
In facie, Suculaɾum prima in naribus	0	12	♊	5	46 ſ.	A.	3
Aldebaran	4	12 ſ.	♊	5	31	A.	1
In extremitate, communis cum dextro pede Heniochi	16	59 ſ.	♊	5	20	B.	2
Inferior cornu ♉	19	12	♊	2	14	A.	3
Propus ♊	25	22	♊	0	13	A.	4
Lucida pedis ♊	3	31	♋	6	48 ſ.	A.	2
Caput inferior ♊, Pollux, Hercules	17	43	♋	6	38	B.	2
In Siniſtro humero ſequentii ♊	18	6	♋	3	3	B.	4
Quæ in radice caudæ ♋, lucidior	25	45 ſ.	♋	2	18 ſ.	A.	4
Aſellus Boreus	1	57	♌	3	8	B.	4
Aſellus Auſtrinus	3	8	♌	0	4	A.	4
Duarum in roſtro ♋ inferior & auſtralis.	7	36 ſ.	♌	5	20	B.	6
Cor Leonis	24	17	♌	0	26 ſ.	B	1
In ventre ♌ trium Auſtralior	4	5	♍	2	49 ſ.	B.	6
In genu poſteriori ♌	13	8 ſ.	♍	1	40	B.	4
Prima auſtralis alæ ♍	21	32	♍	0	43	B.	3
Secunda quatuor in Siniſtrá alâ ♍	4	35 ſ.	♎	2	50	B.	3
Spica ♍	18	16	♎	1	59	A.	1
Auſtralis trium in fimbriâ ♍	28	51	♎	2	57 ſ.	B.	4
Lanx Auſtrina ♎	9	31	♏	0	26	B.	2
Sub boreali lance in ſiniſtro brachio ſequens	15	17	♏	1	48	A.	3
Suprema in fronte ♏	27	36	♏	1	5	B.	2
Borealiſſima frontis	29	3 ſ.	♏	1	42	B.	4
Cor Scorpii	4	13	♐	4	27	A.	1
In boreali parte arcûs duarum auſtralior	0	47 ſ.	♑	2	0	A.	4
Trium in capite ♐ præcedens	7	56	♑	1	44 ſ.	B.	4
Auſtralis trium in cornu ♑ præcedenti	28	31	♑	4	41	B	3
Duarum lucidarum in caudâ ♑ præcedens	16	14	♒	2	26	A.	3
In dextro femore ♒	29	53	♒	1	10	A.	5
Succedens in effuſione aquæ ♒	6	4	♓	0	19 ſ.	A.	4

CATALOGUS STELLARUM FIXARUM MILLE, *ex Accuratis* Tychonis Brahæi *Obſervationibus & Calculo, ad annum Incarnationis* M. DC. *completum.*

Cum aliis nonnullis ex Hemiſphærio Auſtrali, quæ Uraniburgi *ob magnam P li Borei altitudinem, aut omnino aut commodè videri non poſſunt.*

EX TABULIS PHILOLAICIS DESCRIPTÆ.

Urſa Minor, Cynoſura.

DENOMINATIO Stellarum.	Longitudo G.	M.	S.	Latitudo gr.			
In extremo caudæ, vulgò Polaris.	23	2 ſ.	♊	66	2	B	2
Penultima caudæ.	23	36	♊	69	50	ſ	4
Quæ in caudæ radice.	3	24	♋	73	50		4
Superior duarum in ◻ ſequentium.	21	29	♋	75	0		4
Earundem inferior.	24	52		77	38	ſ.	5
Superior duarum in ◻ præcedent.	7	16 ſ.	♌	72	51		2
Earundem inferior.	14	41	♌	75	23	ſ	3
Informis duarum Auſt. ad Cap. Urſæ.	2	54	♌	71	23		6
Quæ ſupra hanc.	27	20	♋	70	18		6
Informis, principium earum, quæ ſunt in lineâ rectâ cum Polo.	17	17	♊	35	50	B.	6
Secunda.	17	28	♊	37	20	B.	6
Tertia obſcura.	17	45	♊	40	13		6
Quarta.	18	3	♊	42	56		6
Prima informis circa Polarem.	28	38	♋	57	55		6
Secunda.	21	55	♊	70	42		6
Tertia.	24	31	♊	69	3		6
Quarta.	15	7	♊	68	4		6
Quinta.	7	22	♊	67	43		6
Sexta.	9	57	♊	67	22		6
Viciniſſima Polo.	26	30	♊	63	55	B	[illegible]

Urſa major, Helice.

DENOMINATIO Stellarum.	Longitudo G.	M.	S.	Latitudo gr.			
Quæ in roſtro.	17	36	♋	40	2	ſ.B.	4
Sub oculo ſiniſtro.	17	10	♋	43	55	ſ.	4
Contigua ſub hac.	16	8	♋	44	22		5
Supra oculum dextrum	18	25	♋	47	50	ſ.	4
Supra oculum ſiniſtrum.	19	44 ſ.	♋	47	44	ſ.	4
Ad aurem ſiniſtram.	24	42 ſ.	♋	51	36	ſ	5
Infima & præcedens in parvo △ colli.	23	50	♋	42	30		5
Sequens in eodem triangulo.	25	2	♋	45	3		4
Suprema in apice ejuſdem △.	28	0	♋	45	21	ſ.	5
In collo dicto △ ſuccedens.	0	38	♌	42	36	B.	4
Sequens infra hanc.	3	38 ſ.	♌	38	15	ſ.B.	4
In genu ſiniſtro anteriori.	0	32 ſ.	♌	34	34	ſ.	3
Duarum in dextro pede Borealior.	25	56	♋	29	15	ſ B	3
Auſtralior.	27	10	♋	28	38		3
Infra genu dextrum.	27	7	♋	33	30		5
In ipſo genu dextro.	27	26	♋	36	6		5
Superior præced. in ◻ majori.	9	34	♌	49	40		2
Inferior ejuſdem ◻.	13	43 ſ.	♌	45	3	ſ.	2
Superior ſequentium quadrati.	25	25 ſ.	♌	51	37	B.	2
Inferior earundem.	24	45	♌	47	6	ſ.	2
Superior ſiniſt. pedis poſteriorem.	13	56 ſ.	♌	29	51	ſ.B.	4
Sequens & auſtralior.	15	4 ſ.	♌	28	45		4
In genu præcedente pedum poſteriorum.	22	53	♌	35	14		4
Præcedens duarum in dextro pede poſteriore.	0	55	♍	26	14		4
Sequens & Auſtralior.	1	36	♍	24	54		4
Antepenultima caudæ.	3	10	♍	54	18		2
Penultima.	9	56 ſ.	♍	56	22		2
Ultima caudæ.	21	12	♍	54	25		2
Informis inter caudas hujus & ♌.	17	43 ſ.	♍	40	6	B.	2
Illa quæ in dorſo.	28	10	♌	41	30	B.	4
In Siniſtro pede poſteriori.	21	2	♌	35	1		5
Informis inter Urſam & Caput Leonis	6	17	♌	17	55		3
Illa quæ ſupra hanc ad Ortum.	8	10	♌	20	42		4
Illa quæ hanc præcedit.	5	0	♌	20	5		4
Sequens duarum ante has.	1	57	♌	20	58		4
Earum præcedens.	29	42	♋	23	41		4
Inter extremum pedem & Cap. Leonis.	14	12	♌	21	53		4
Sequens borealis.	18	55	♌	25	4	B	4
Sequens auſtralis.	19	57	♌	24	50		3
Præcedens duarum in baſi Oxygonii.	23	22	♌	21	28	B	3
Sequens.	26	9	♌	20	44		3
Tertia Borealis in Oxygonio.	25	19	♌	24	58		4
Quæ inter crura Urſæ.	12	16	♍	40	30		5
Prima inter caudam & corpus.	21	29	♋	58	8		6
Secunda.	23	55	♋	47	14	B	6
Tertia.	19	49	♋	47	30	B.	6

DENOMINATIO Stellarum.	Longit. G.	′	S.	Latit. gr.	′		
Prima inter Urſam & Cap. ♌.	23	17	♋	46	50	B.	6
Secunda.	3	58	♌	47	55	B.	6
Tertia.	6	0	♍	48	40		6
Quarta.	6	30	♍	49	42		6
Quinta.	6	19	♍	49	42		6
Sexta.	19	5	♍	49	0		6
Septima.	18	1	♍	49	27		6
Octava.	25	42	♍	48	11		6
Nona.	16	2	♍	52	25		6
Parvula quæ contingit coxam.	1	41	♌	35	40	B.	6

Draco.

Quæ eſt in lingua.	18	56	ſ. ♏	76	17	B	4
In ore.	4	14	ſ. ♐	78	15	ſ.	4
Duarum lucidarum in capite præcedens.	6	19	♐	75	21		3
Quæ ad genam.	19	3	♐	80	21	ſ	4
Sequens lucidarum vulgò lucida capitis.	22	24	♐	75	3	ſ.	3
In primâ colli inflectione trium borealior.	17	4	♑	81	53		5
Auſtralis.	24	31	♑	77	57		5
Media earundem.	20	33	ſ. ♑	79	51	ſ.	5
Quæ ſequitur ad Ortum.	9	29	♒	80	53	ſ.	4
Quæ eſt propè ſecundam flexuram.	28	33	♓	81	51		4
Borea □ flexuræ ſecundæ.	12	26	ſ. ♈	82	49		3
Borea lateris ſequentis.	15	21	♈	78	9	ſ.	4
Auſtralis ejuſdem lateris.	27	47	♈	79	25		3
Sequentis △ præcedens.	15	18	♉	83	5		4
Quæ ſequitur ad Auſtrum.	19	40	ſ. ♉	80	38		4
Quæ ſupra hanc.	26	44	♈	80	54		4
In reliquo triangulo ſequens.	6	34	ſ. ♋	83	4	ſ.	4
Auſtralis ejuſdem.	1	28	♈	83	28	ſ.	4
Præcedens ac Borealis trianguli.	5	31	♊	84	48		4
Quæ in flexurâ nodi tertii.	29	44	ſ. ♌	81	4	ſ.	3
Polo Zodiaci proxima.		26	♌	86	53		4
Quæ 24. ſequitur.	28	21	♍	83	18	B.	5
Succedens huic.	28	22	♍	81	41		5
Polo vicinior mediocritèr lucida.	26	51	ſ. ♍	84	46	B.	3
Præcedens antepenultimam ab extrema flexione.	7	55	♎	78	32	B.	3

DENOMINATIO Stellarum.	Longit.			Latit. gr.			
Antepenult. flexuram præcedens.	12	28	ſ. ♎	74	11	ſ.	3
Penultima ad flexuram.	29	22	♍	71	4		3
Quæ flexuram ſequitur ſecunda.	29	17	♌	65	18		5
Quæ flexuram proximè ſequitur.	2	10	ſ. ♍	56	36	B.	2
Penultima caudæ.	10	26	♌	61	33		3
Ultima caudæ.	4	37	ſ. ♌	57	7		3
Inter 11. & brachium Cephei Informis.	1	4	♈	77	31	ſ. B.	5

Cepheus.

In cingulo.	0	13	♉	71	7	B.	3
Lucida in humero dextro.	7	13	♈	68	54		3
In Siniſtro humero.	27	53	ſ. ♈	62	35		4
Quæ in tiara ſequitur ad Boream.	8	29	♈	61	3		4
Auſtralis.	7	53	ſ. ♈	59	59		4
Quæ verſus Ortum.	13	39	♈	58	46		4
Duarum in flexu brachii Auſtralis.	29	21	♓	72	49		4
Borealis.	29	54	♓	74	0	ſ	4
Illa quæ in humeris.	18	46	♈	65	42		5
In dextro pede.	27	33	♉	75	27		4
In ſiniſtro pede.	24	23	♉	64	28	B.	3

Bootes, Arctophylax.

Trium in Siniſtra manu præcedens.	24	9	ſ. ♍	58	53	B.	4
Secunda.	25	33	♍	58	51		4
Tertia.	25	59	ſ. ♍	60	1		4
Quæ in ulva Siniſtra.	1	18	♎	54	40		4
In humero ſiniſtro.	13	5	ſ. ♎	49	33	ſ.	3
In Capite.	18	43	ſ. ♎	54	15	ſ.	3
In dextro humero ſupra Coronam.	27	29	ſ. ♎	49	1		3
In Coxendice infra brachium dextrum.	22	29	ſ. ♎	40	40		3
Infima duarum in dorſo.	18	16	♎	42	11		4
Superior earum.	17	17	ſ ♎	42	35	ſ.	4
Quæ in crure dextro.	27	26	ſ. ♎	27	57		3
Superior cruris.	13	42	♎	28	9	B.	3

DENOMINATIO Stellarum.	Longit. G.	M.	S.	Latit. gr.	'		
Media.	12	25	♎	6	33	B.	4
Infima.	13	37	♎	25	14		4
In fimbria. ARCTURUS.	18	39	♎	31	2	ſ.	4
Circa genu, infima trium informium.	26	13 ſ.	♎	30	27	ſ.	4
Media.	27	11	♎	31	22		4
Superior.	27	52	♎	33	52		4
Præcedens ex 4. dextræ manûs.	28	11	♎	40	14	ſ.	5
Sequens Auſtralis.	29	40	♎	40	31	ſ.	5
Borealis.	27	53	♎	42	16	B.	5
Quæ hanc ſequitur.	29	16	♎	41	55		5
Præcedens Auſtr. duarum in Colorobo.	29	34	ſ.	45	6		6
Sequens.	1	26 ſ.	♏	45	52		5
Superior in Colorobo.	27	32	♎	53	27	ſ.	5
Informis circa hanc.	2	35	♏	54	0		4
Informis à duabus circa caput.	11	49	♎	60	40		4
Secunda ipſarum.	12	33	♎	60	57	B.	6

Corona Borea.

Lucida corona.	6	58 ſ.	♏	44	23	B.	2
Præcedens.	3	37	♏	46	8		4
Illa quæ ſupra hanc.	3	10 ſ.	♏	48	25		5
Quæ ſequitur ad Septentrionem.	8	2	♏	50	21		9
Quæ ſequitur lucidam.	9	14 ſ.	♏	44	33		4
Proximè ſequens.	11	25	♏	44	52		4
Quæ hanc ruſſus comitatur.	13	32	♏	46	9	ſ.	4
Omnium ultima.	13	2	♏	48	24		6

Engonaſi. Hercules.

In capite.	10	31	♐	37	23	B.	3
In humero dextro.	25	27 ſ.	♏	42	48		3
Penultima dextri brachii.	23	36	♏	40	5		3
Infima in dextro brachio.	26	6 ſ.	♏	37	19		4
In ſiniſtro humero.	9	10	♐	47	47		3
In ſiniſtro brachio.	14	22	♐	49	23		4
Præcedens [illegible] exuviis leonis.	19	36	♐	51	26	ſ.	4
Sequens [illegible] triangulo exuviarum.	27	19	♐	52	19		4
In baſi trianguli ad boream.	23	57	♐	53	46		4
Media earum quæ in exuviis.	23	38	♐	52	47		4
Quæ in coxa ſiniſtra.	26	2	♏	53	10	ſ.	3
Hâc orientalior in ſemore ſiniſtro.	2	45 ſ.	♐	53	21	B.	3

DENOMINATIO Stellarum.	Longit. G.	M.	S.	Latit. gr.	'		
Præcedens trium contiguarum in ſemore.	6	21 ſ.	♐	59	38	B.	4
Media.	7	19 ſ.	♐	60	15	ſ.	4
Sequens.							
In genu ſiniſtro.	22	56	♐	60	47		4
Quæ in ſiniſtra ſura prope caput Draconis.	14	17	♐	69	22		3
Præcedens trium obſcur. in pede ſiniſtro.	7	5 ſ.	♐	71	20		6
Media earundem.	11	7	♐	71	13	ſ.	6
Ultima.	18	0	♐	71	5		N.
In ſuperiori ſemore dextro.	23	8 ſ.	♏	60	22	ſ.	3
Borealior in eodem ſemore.	17	39 ſ.	♏	63	14		4
Quæ eſt in dextro genu	8	43 ſ.	♏	65	55		4
Quæ eſt in ſuperiore ſura.	5	57	♏	63	51		4
Quæ in crure.	2	43	♏	64	23		4
Præcedens in dextro crure.	16	32	♏	62	29		5
Quæ in tibia dextri pedis.	2	28 ſ.	♏	60	15	ſ.	4
Extrem. in dextro pede.	27	6	♎	57	15	B.	4

Lyra. Vultur Cadens.

Lucida Lyræ.	9	43	♑	61	47	ſ.	1
Quæ ſupra lucidam ad Eurum.	13	14	♑	62	27	B	5
Quæ infra lucidam ad Eurum.	12	26	♑	60	26		5
Quæ in medio eductionis cornuum.	16	10 ſ.	♑	59	26		4
Duarum contiguarum ad boream.	24	32	♑	60	46		5
Quæ ad Auſtrum.	25	2	♑	59	41		5
Duarum præced. in jugo, Boreal.	13	16 ſ.	♑	56	5		3
Parva ſub hâc	13	3 ſ.	♑	55	16		6
In jugo duarum ſequentium Borea.	16	11	♑	55	6		3
Parva quæ huic ſubeſt.	16	20	♑	54	31	ſ.	6
Quæ in medio ferè corpore.	20	52	♑	58	6	B.	5

Olor, Cygnus.

In Roſtro.	25	44	♑	49	2	B.	3
In Capite.	29	20	♑	50	42		5
In medio colli.	7	33	♒	54	19		4
In Pectore.	19	25	♒	57	9		3
In cauda.	29	53 ſ.	♒	59	56		2

DENOMINATIO Stellarum.	Longit. G.	M.	S.	Latit. gr.	′		Mag.
Prima & lucidiſſima in ancone ſuperioris alæ	10	53	♒	64	28	B.	3
Trium in ſuperiore alâ, auſtralis.	13	21	♒	69	42		4
Penultima ſuperioris alæ.	12	39 ſ.	♒	71	31		4
Extrema ſuperioris alæ.	9	36 ſ.	♒	73	50	ſ.	4
Quæ in ancone inferioris alæ.	22	9 ſ.	♒	49	26		3
In medio ipſius.	24	18	♒	51	41	ſ.	4
Extrema inferioris alæ.	27	43	♒	43	44		3
Præcedens in inferiori pede.	0	32	♓	54	59		4
Quæ ſequitur in inferiori genu.	5	21 ſ.	♓	56	36		4
Auſtralis & præced. duarum contig. in ſuperiori pede.	22	50	♒	63	37		4
Superior earundem, & borealis.	24	34 ſ.	♒	64	17		4
Inferior duarum informium dextram alam ſequens.	3	3 ſ.	♓	50	33		4
Superior earundem.	4	53 ſ.	♓	51	31		4
Infra alam verſus pedem Pegaſi.	4	33	♓	38	39		3
Duarum verſus Lyram præcedens.	19	57	♑	66	15		4
Sequens borealior.	24	49 ſ.	♑	68	52		4
Ad volam alæ parvula.	13	31	♒	69	35		4
Ad inferiorem alam.	18	14	♒	53	11		6
Ad ſuperiorem.	13	18	♒	69	42		6
Nova anni 1600. in pectore Cygni.	16	15	♒	55	30		
	28	44	♒	25	11		6
	28	22	♒	35	35	B.	6

Nota Kepleri.

Ad 27. & 28. in meo exemplari invenio Signum ♌ incluſum circulo. Id utrum ſit ex originali, an à meipſo inter deſcribendum oppoſitum, non memini. Certè locus erat dubitandi, quia 27. multum excedit metas oloris, & appropinquat Equuleo. Quinetiam 26. cum 7, numeris indicibus, eadem eſſe videtur. Sed fidem Aſtronomis meam approbo, communicatione exemplaris. In 12. & 14. ſecutus ſum conſenſum exemplaris mei cum Longimontani. Id ſemper ſpectavi.

CASSIOPEIA.

DENOMINATIO Stellarum.	Longit. G.	M.	S.	Latit. gr.	′		Mag.
In capite.	29	35	♈	44	40	B.	4
In pectore Schedir.	2	17 ſ.	♉	46	35	ſ.	3
In cingulo.	4	38 ſ.	♉	47	5		4
In flexura ad coxas.	8	27	♉	48	46		3
Ad genu.	12	21	♉	46	22		3
In crure.	19	13 ſ.	♉	47	29		3
Extrem. pedis.	26	39	♉	48	54		4
In brachio ſiniſtro.	6	14 ſ.	♉	43	6	ſ.	4
In cubito ſiniſtro.	5	16	♉	43	28		5
In cubito dextro.	24	39	♈	49	24		6
In eductione ſedis.	7	6	♉	52	14		4
Lucida Cathedræ.	29	35	♈	51	14		3
Extrema Cathedræ.	25	34	♈	51	8		6
Quæ juxta hanc juxta extremitatem ſellæ.	25	32	♈	52	39		6
Quæ in rectâ ferè lineâ, cum 11. & 17. *	19	28	♉	52	48		6
Extrema Scabelli. *	22	21	♉	56	13		6
Media Scabelli, Longim. 32. *	22	23	♈	54	27		6
In Scabello prox. ad plantam pedis. *	21	58	♉	52	8		6
Quæ ſequitur genu. *	12	57 ſ.	♉	44	57		6
Quæ genu præcedit. *	10	0	♉	45	4		6
Gyrus umbilici. *	6	52	♉	47	31		6
Parvula ad crines. *	29	10	♈	45	38		6
Sequens ex duabus borealis in virga. *	29	32	♈	41	15		6
Præcedens earundem. *	27	57	♈	41	25		6
Penultima virgæ. *	26	56	♈	39	15	ſ.	6
Extrema virgæ. *	25	54	♈	38	9		6
Infra ſcabellum trium præced. Sept. *	1	46	♊	53	16		6
Sequens ſeptentrionalis *	6	12	♊	53	32		6
Auſtralis. *	0	11	♊	52	4		6
Quæ ſupra has verſus Polum. *	6	45	♊	59	8		6
Inter Caſſ. & Erithth. prima.	17	17	[illegible]	[illegible]	50		6
Secunda. *	27	19	♊	35	48		6
Tertia. *	2	33	♋	34	49		6
Quarta. *	3	0	♋	30	22		6
Trium in Boream Prima. *	0	45	♋	44	10		6
Secunda.	0	57	♋	45	32		6
Tertia.	26	15	♊	45	32		6
Quæ magis in Bor. Prima verſus urſam.	0	10	♋	54	43	B.	6

DENOMINATIO Stellarum.	Longitudo G.	M.	S.	Latit. G.	′		
Secunda.	27	45	♊	56	15	B	6
Tertia.	4	13	♋	56	55		6
Quarta.	29	58	♊	59	18		6
Quinta.	7	54	♋	60	47		6
Sexta.	10	14	♋	62	4		6
Septima.	9	37	♋	62	45		6
Octava.	20	58	♋	63	17		6
Nova anni 1572.	6	54	♉	53	45		6

DENOMINATIO Stellarum.	Longit. G.	M.	S.	Latit. Gr.	′		
Quæ facit lineam rectam cum Polo & lucida Perſei.	2	18	♊	45	10	B.	4
Secunda illarum.	4	12	♊	48	7		6
Catalogus Kepleri.	4	2	♊				6
Tertia.	4	41	♊	49	27		6
Quarta.	6	25	♊	53	37		6
Catalogus Kepleri.	6	15	♊				6

PERSEVS.

In extrema dextræ manûs involutione.	18	31	♉	39	0	ſ.	4
In cubito dextro.	23	9 ſ.	♉	37	28	ſ.	4
In dextro humero.	24	46 ſ.	♉	34	30		3
Quæ in ſiniſtro humero.	19	4 ſ.	♉	31	34	ſ.	4
Quæ in capitis vertice.	21	50	♉	34	26	B.	5
Quæ in dorſo.	23	33	♉	30	36		4
Fulgens in dextro latere.	26	17	♉	30	5		2
Quæ proximè infra ſequitur.	27	4 ſ.	♉	27	59		5
Hanc ſequens parva.	28	13 ſ.	♉	27	55		5
Quæ eſt ad flexuram ejuſdem lateris.	29	15	♉	27	14		3
Quæ eſt in cubito ſiniſtro.	22	6	♉	26	4		4
Caput Meduſæ, ſive Algol.	20	37	♉	22	22		3
Quæ ſub Algol.	20	31	♉	20	54		5
Hanc præcedens.	19	18	♉	20	33		4
Præcedens ad boream in eodem capite.	18	20	♉	21	35		4
In poplite dextro.	6	13 ſ.	♊	28	22	ſ.	5
Quæ dextrum genu præcedit.	4	11 ſ.	♊	28	50		4
Flexuram genu præcedens.	3	55	♊	26	11		
Media in genu dextro.	5	14	♊	26	39		4
Quæ infra genu dextrum.	6	0	♊	24	35		6
Quæ eſt in plantâ pedis dextri.	8	1	♊	18	56		5
Quæ eſt in ſiniſtro femore.	28	11	♉	22	6		4
Quæ in ſiniſtro genu.	0	8	♊	19	4		3
Quæ in crure ſiniſtro.	29	23 ſ.	♉	14	53	ſ.	5
Quæ in ſiniſtro calcaneo.	25	33	♉	12	8	B.	
Sequens ſiniſtri Pedis.	27	36	♉	11	17	ſ	4
Informis ſupra caput.	26	45	♉	42	26		3
Quæ in ſuperiore parte ſemoris dextri.	2	32	♊	29	31		5
Informis præcedens Cap. Meduſæ.	16	16	♉	20	53		5

AVRIGA, HENIOCHVS, ERICHTHONIVS.

Præcedens & ſuperior duarum capitis.	23	38	♊	32	15	B.	6
Inferior & ſequens.	24	14	♊	30	50		4
In ſiniſtro humero fulgens Capella.	16	16	♊	22	50	ſ.	1
Lucida in dextro humero.	25	52	♊	21	27	ſ.	2
Catalogus Kepleri.	24	28	♊				
In dextro brachio.	24	28	♊	13	44		4
Kepl. Longom. & Progymn.	23	58	♊				
In ſiniſtro cubito.	13	9	♊	20	52	B.	4
Præcedens hædus.	13	5 ſ.	♊	18	8	ſ.	4
Sequens hædus.	13	49 ſ.	♊	18	11	ſ.	4
In ſuperiore pede.	11	4 ſ.	♊	10	22		4
Superior ad lucidam in dextro humero.	24	25	♊	27	27		5
Duarum in lumbis borealis.	16	52 ſ.	♊	18	34	ſ.	6
Auſtralis.	16	6	♊	16	59		5
Hâc inferior ad occaſum.	14	58	♊	15	21	ſ.	5
Sequens.	17	9	♊	14	4		6
Ad nates.	12	0	♊	15	3		5
Præced duarum in dextro brachio.	22	12 ſ.	♊	15	42	ſ.	5
Sequens.	22	24	♊	15	43		5
Kepleri Catalogus.	22	44	♊				
Sub hâc in dextro crure.	22	35	♊	13	49		6
In ſiniſtra tibia.	16	39 ſ.	♊	11	15		5
In dextro pede.	18	34	♊	8	51		5
Præcedens duarum circa Erichthonium.	10	4 ſ.	♊	14	51		5
Sequens auſtralis.	30	31	♊	14	2		5
Borealis informis inter Erichthon & pedes ♊.	27	47	♊	6	4		4
Secunda.	22	58	♊	4	6		4
Sub iſta ad Ortum.	23	58	♊	2	26	B.	4

DENOMINATIO Stellarum.	Longitudo G.	M.	S.	Latitudo Gr.	′		
Harum præcedens.	19	52	♊	2	28		4
Ultima omnium.	21	55	♊	1	6	B.	4

OPHIÜCHUS, SERPENTARIUS.

In capite.	16	50	♐	35	57	B.	3
In dextro humero.	19	45	♐	28	1		3
Inferior, & ſequens in dextro humero.	21	5	♐	26	11		3
Præced in ſiniſtro humero.	4	59	ſ. ♐	32	55	ſ	4
Sequens in eodem humero.	6	16	♐	31	56	ſ	4
Quæ in ſiniſtro cubito.	0	3	♐	23	39	ſ	4
In ſiniſtrâ manu borealior.	16	44	ſ. ♏	17	19		3
Sequens auſtralior.	27	57	♏	16	30	ſ.	3
In dextro ancone.	19	33	♐	15	19		4
Catalogus Kepleri.	19	3	♐			B.	
Auſtralior & præcedens in dextrâ manu.	24	13	ſ. ♐	13	47		4
Borealior & ſequens in eâdem manu.	25	14	ſ. ♐	15	20		5
In dextro genu.	12	24	♐	7	18		3
Correxit Kepl. in Lib. de Stella nova.	12	20	ſ. ♐			B.	
Quæ in ſiniſtro genu.	3	39	♐	11	30		3
Quæ in dextra tibia, caret Kepler.	14	23	♐	2	12		3
Quinta informium in Viâ Lact.	26	31	♐	33	2	ſ.	4
Supra lucidam in Collo Serpentis.	16	48	♏	8	4	B.	4
Poſt Coxas Ophinchi.	14	49	♐	10	21		4
Sequentium a. Auſtralis.	18	57	♐	26	36	ſ	3
Borealis.	19	48	♐	10	35		4
Illa quæ ſupra hanc.	18	45	♐	15	18		4
Inter ſiniſtr. manum & genu Ophi.	0	57	♐	13	19		5
Informis circa humerum borealem.	24	30	♐	27	55		4
Media ipſarum.	24	38	♐	26	23		4
Auſtralis trium.	24	53	♐	24	50		4
a. Præced. 4 in dextro pede. Deſunt in Catalogo Kepleri ſequentes ad finem. Vide Claſſem Secundam	14	1	♐	2	16		3
b. Sequens.	15	42	♐	1	32	B	4
c. Tertia.	16	23	♐	0	20		[illegible]
d. Alia ſequens.	17	12	♐	0	29		5
e. Illa quæ contingit Calcaneum.	17	36	♐	0	58	B.	5

DENOMINATIO Stellarum.	Longit. G.	M.	S.	Latit. G.	′		
f. In crure dextro.	16	50	♐	7	10	B.	5
g. Informis circa crus.	21	45	♐	4	20		6
h. Sequens duarum in manu.	0	7	♐	23	34		5
i. In coxa Ophiuchi.	15	0	♐	10	18		5
k. Sequens Auſtralis.	19	2	♐	8	5		4
l. In dextrâ manu.	20	4	♐	10	40		5
m. Borealis.	19	5	♐	15	6	B.	5

SERPENS OPHIUCHI.

Præcedens in ore.	11	35	♏	38	12	B.	3
Quæ in ore eſt.	14	24	ſ. ♏	39	6	ſ.	3
Quæ in temporibus.	17	6	♏	35	25		
In eductione colli.	14	21	ſ. ♏	34	27	ſ.	3
Quæ ad ſiniſtrum oculum.	15	10	♏	37	28	ſ.	4
Quæ ad nares.	16	32	♏	42	37		4
Secunda in collo infra caput.	12	46	♏	28	58		3
In medio nexu colli. Long. 49.	16	30	♏	25	35		2
Auſtralior trium.	18	46	♏	24	5		3
Quæ in ſecundâ flexione.	20	26	ſ. ♏	16	26		4
Antepenultima caudæ.	24	34	ſ. ♐	19	57		3
Catalogus Kepleri.							
Penultima.	0	12	ſ. ♑	20	37		3
Ultima.	10	10	♑	26	59	B.	3

SAGITTA, ſeu TELUM.

Superior & Orientalior.	1	32	♒	39	13	B.	4
Media, ſeu hanc præcedens.	27	55	♑	38	58	ſ.	5
Parvula quæ eſt ſupra mediam.	28	31	♑	36	31		6
Superior duarum contiguarum in Glyphide.	25	30	ſ. ♑	38	53		4
Inferior earundem.	25	39	♑	38	18		4
Informis & inferior ſupra Sagittam.	0	13	♒	42	43		4
Superior informium.	1	36	♒	44	2		4
Tertia in Oxygonio informium.	23	57	♑	46	3		4

AQUILA ſeu VULTUR VOLANS.

						B.	
Quæ in capite.	29	28	ſ. ♑	27	8	ſ.	6
In collo.	26	53	♑	26	49	ſ.	3
Lucida in Scapulis	26	9	♑	29	21	ſ.	2
Parva quæ ſupra lucidam	25	33	♑	30	54	ſ.	6
Quæ in ſiniſtro humero.	25	26	♑	31	18		3
Quæ ſequitur parva.	26	8	ſ. ♑	31	59		5

DENOMINATIO Stellarum.	Longitudo G.	M.	S.		Latit. G.			
Superior & præcedens in inferiori ala.	21	16	ſ.	♑	28	46	B. ſ	4
Inferior & ſequens in alâ.	22	14		♑	26	35		5
Cauda vulturis.	14	15		♑	36	16	ſ	3
Quæ proximè caudam præcedit informis.	12	44		♑	37	40		3
Media informium ſupra caudam.	9	12		♑	43	32	ſ.	4
Septima informis, quæ, ſcilicet ex tribus ſequitur.	9	17		♑	41	5	B,	4

ANTINOUS.

In manu ſiniſtra.	29	21	ſ.	♑	18	48	B.	3
In latere dextro.	20	17	ſ.	♑	20	14	ſ.	3
In genu.	19	17		♑	14	28		3
In dextro brachio.	18	1		♑	24	56		3
In pectore.	24	50		♑	21	38		3
In pede dextro.	11	46		♑	17	41		3
Præcedens hanc informis.	10	29		♑	16	57	B	4

DELPHINUS.

Lucida caudæ.	8	32		♒	29	8	B.	3
Quæ caudam ſequitur.	9	48		♒	28	52	ſ.	6
Quæ infra caudam.	9	42		♒	27	34		6
In Rhomboide præcedentis lateris auſtralior.	10	55		♒	35	57	ſ.	3
Ejuſdem lateris Borealior.	11	50	ſ.	♒	33	5		3
Sequentis lateris Auſtralior.	13	36	ſ.	♒	32	0		3
Quæ eſt in capite.	13	52		♒	32	47		3
Quæ in præcedente latere 4. contig. anteir.	10	17		♒	32	8		5
Præcedens duarum infimaru in Rhomboide.	9	18		♒	30	41	ſ.	6
Sequens earundem.	10	42		♒	30	41	B.	6

EQUULEUS, EQUISECTIO.

Præcedens capitis.	17	32	ſ.	♒	20	12	ſ	4
Sequens capitis.	19	54	ſ.	♒	21	6	B.	4
Præcedens oris.	17	54		♒	25	16		4
Sequens oris.	18	54	ſ.	♒	24	52		4

PEGASUS, EQUUS ALATUS.

DENOMINATIO Stellarum.	Longit. G.	M.	S.		Latit. Gr.			
Os Pegaſi.	26	22		♒	22	7	ſ.	3
Caput.	1	15	ſ.	♓	16	25	B.	4
Quæ ad auſtrum in capite.	29	45	ſ.	♒	15	43		5
Inferior & ſequens in jubâ.	13	0		♓	14	30		6
Superior & Præced. in jubâ.	12	44		♓	15	43	ſ.	6
Lucida colli.	10	39	ſ.	♓	17	41	B.	3
Sequens in collo.	12	25		♓	18	29		5
Siniſtrum crus.	3	23		♓	36	42	ſ.	4
Siniſtrum genu.	8	50		♓	34	19		4
Dextrum crus.	14	3		♓	41	0	ſ.	4
Præced. duarum in pectore.	17	29	ſ.	♓	28	49		4
Sequens.	18	53		♓	29	24		4
Dextrum genu.	20	10	ſ.	♓	35	7	ſ.	3
In eodem genu ad auſtrum.	19	25		♓	34	24		5
Præced. duarum in alâ.	25	33		♓	25	35		6
Sequens in alâ & auſtralior.	27	6		♓	24	50	ſ.	6
Prima alæ. Marchab.	17	56	ſ.	♓	19	26		2
Eductio cruris. Scheat.	23	49		♓	31	7	ſ.	2
Extrema alæ.	3	38		♓	12	35		2
In collo Pegaſi.	6	28		♓	20	51		4
Infra os & ſupra pedem.	24	51		♒	33	21		4
Hâc ſuperior.	28	47		♒	36	11		4
Primam ſequens.	15	15		♓	23	16		4
Kepleri Catalogus. ſorte.	25	15	ſ.	♓ ♒			B.	

ANDROMEDA.

Caput (in Kepleri Catalogo a5 circulo incluſum.)	8	47		♈	25	42	B.	2
Infima in Scapula dextra	17	6	ſ.	♈	27	6	ſ.	5
Inferior in ſiniſtro humero.	15	25			23	3	ſ.	4
In dextro brachio trium Auſtralior.	14	58			41	33		5
Borea.	15	45	ſ.	♈	33	20	ſ.	4
Media.	16	7		♈	32	14	ſ.	5
Auſtralior in ſuperiori manu.	10	28		♈	40	56	ſ	4
Borealior.	11	46		♈	41	44		4
Obſcura ibidem.	14	23		♈	42	8		5
Suprema omnium in Boreali manu.	12	47		♈	43	49		4
Præced. & Superior duarum in ſiniſtro brachio.	15	9		♈	17	48		4
Quæ in ſiniſtro cubito.	16	53	ſ.	♈	15	58		5
Auſtralior in cingulo.	24	49		♈	25	59		2
Media.	24	6		♈	30	33	ſ.	4
Borea.	23	36		♈	32	30	ſ.	4
In auſtrali pede lucida.	8	39		♉	27	46	ſ.	2
Extrema in ſuperiori pede.	9	6	ſ.	♉	36	49	ſ	5
Lucidior & Præcedens in dextro pede.	6	52		♉	35	21	ſ.	4

DENOMINATIO Stellarum.	Longitudo G.	M.	S.		Latitudo Gr.			Mag.
Suprema in ſiniſtrâ ſurâ.	5	6		♉	28	59	B.	5
Inferior.	3	23		♉	27	54	ſ	5
Quæ ad genu dextrum.	0	56		♉	36	20		5
Quæ in extremo catenæ annulo.	24	0		♉	57	19		4
Clarior & Superior in Siniſtrâ Scapulâ.	16	19	ſ.	♉	24	20		3

TRIANGULUS, DELTOTON.

In apice trianguli.	1	19		♉	16	49	ſ.	4
In baſi ad boream.	6	49	ſ.	♉	20	33		4
Media.	7	59		♉	19	29		5
Auſtralior in baſi.	7	58		♉	18	57		4

COMA BERENICES.

In cuſpide primi & bor. △.	18	17		♍	28	25	B.	3
Kepleri Catalogus ſolus.								
Fortè eadem cum ultima.	28	15		♍	28	32		5

DENOMINATIO Stellarum.	Longitudo G.	M.	S.		Latit. Gr.			Mag.
Superior contingens hanc ad auſtrum ſeq.	18	42		♍	27	23	ſ.	4
Inferior earundem.	18	46		♍	27	20		4
Quæ contiguas 2. ſequitur.	19	19		♍	27	7		4
Præcedens duar. auſtralium contiguarum.	18	25		♍	25	51	B.	4
Altera contigua ad ortum.	18	48		♍	26	7		4
Omnium præcedens ad Auſtrum.	18	0		♍	23	30		4
Suprema trium contiguarum ſequentium.	21	10		♍	25	16		4
Altera & Præcedens.	20	51		♍	24	56		4
Infima & ſequens Kepleri 21.	22	52		♍	24	0	ſ	4
Poſtrema in extenſione comæ.	28	58		♍	32	46		4
Quæ hanc præcedit.	27	49		♍	31	42		4
Quæ inter has, & primam in cuſpide.	27	17		♍	30	16		4
Quæ eſt in Auſtrum.								
Cuſpidis trianguli parvi.	28	15		♍	28	32	B.	5

PARS SECUNDA.

De Stellis Fixis XII. Signorum Zodiaci.

a. Auſtralis in præcedente cornu.	27	37		♈	7	8	ſ.B.	4
Borealis & ſeq. in eodem cornu.	28	23		♈	8	29		4
b. Lucida in vertice capitis. Principalis.	2	6		♉	9	57		3
In rictu duarum borea.	2	34		♉	7	23		6
Quæ magis ad auſtrum.	3	20		♉	5	42		6
Quæ in cervice.	27	57		♈	5	24		5
In Renibus.	8	36		♉	6	7		6
Quæ in eductione caudæ.	12	57		♉	4	8	ſ.	5
Præcedens trium in cauda.	15	15		♉	1	46		4
Media.	16	24		♉	2	50	B.	5
Ultima.	17	50	ſ.	♉	2	36	B.	6
In femore.	11	22		♉	1	12		6
In poplite.	9	35		♉	1	7		6
In genu ſiniſtro.	9	23		♉	1	30	A.	6
In genu dextro.	7	52		♉	0	39	A.	6
Parvula in alvo.	8	46		♉	4	1	A.	6
Quæ eſt infra lucidam Capitis.	1	41			9	13	A.	6
Supra dorſum quatuor informium.	10	35		♉	10	50	ſ.B.	5
Sequens ſci. ad baſin occid. triang. ex ſequentibus.	11	23		♉	11	16	B.	4
Orientalis in baſi △ trianguli.	12	40		♉	10	24	B.	3

DENOMINATIO Stellarum.	Longit. G. M. S.			Latit. G. ′			Magn.
In apice ejuſdem trianguli ad boream.	12	51	♉	12	25	ſ. B.	4

Nota Kepleri.

a.b. Præcipuæ de fixis diſputationes adhibent Cor Leonis & Spicam virginis. Inconſultè egit Copernicus, quod præceſſionem Æquinoctiorum numeravit à prima Arietis, cujus ſitus eſt in Ptolemæo, ὁλοσχερής. Numerat enim ab ea ad Spicam gr. 170 0′ ad Cor leonis gr. 115. 50′. Tycho cùm deprehendiſſet illam gr. 170. 39′. eſſe, hanc gr. 116. 40′, ne ergò præceſſionem vel à falſo ſitu numeraret, vel ſi à vero, perturbaret Aſtronomos præceſſione duplici, vel etiam triplici, ab eadem fixa inchoatâ: Stellam elegit aliam, extra formam, Lucidam ſcilicet ſupra caput, etſi eam in prima hominum imaginatione, alteri cornu attributam fuiſſe exiſtimo. Æquinoctiale ergò punctum anno 1600. præcedit principalem Tychonis gr. 32. 6′. primam verò conſtellationis gr. 27. 37′ at ſitum ei attributum à Ptolemæo gr. 26 47′ vel gr. 26 58′. Hæ poſteriores duæ Tychonis præceſſiones computandæ ſunt cum Copernicana, non priores. Vide Progymnaſmatum Tychonis Tom. 1. fol. 194. & 226. & ſeq.

TAURUS.

DENOMINATIO Stellarum.	G.	M.	S.	G.	′		Magn.
Suprema in ſectione.	18	0	♉	5	57	A.	5
Altera poſt ipſam.	17	30	♉	7	29	A.	6
Tertia.	16	18	♉	8	49	ſ.	4
Quarta maximè auſtrina.	15	35 ſ.	♉	9	22	ſ.	4
In dextro armo.	21	46	♉	8	41	A.	5
In Pectore.	25	1	♉	8	3	A.	4
In Genu dextro.	27	59	♉	12	13	ſ.	4
In ſuffragine dextrâ.	24	19	♉	14	30	ſ.	4
In Genu ſiniſtro.	4	9	♊	9	32	A.	5

DENOMINATIO Stellarum.	Longit. G. M. S.			Latit. G. ′			Magn.
In ſuffragine ſiniſtrâ.	3	11	♊	11	48		5
In facie, Sucularum prima in naribus.	0	12	♊	5	46		3
Inter hanc & oculum bor.	1	16 ſ.	♊	4	2		3
Quæ inter eandem & oculum auſtralem.	2	22	♊	5	51		1
In auſtrino oculo, Aldeboran, Palilicium.	4	12 ſ.	♊	5	31	A.	1
In boreo oculo.	2	53	♊	2	36	ſ.	3
Ad radicem cornu auſtralis.	8	12	♊	3	40		6
In eodem cornu duarum auſtralior.	12	13 ſ.	♊	2	30	ſ.	6
Quæ magis in Boream.	11	4	♊	4	49	ſ.	4
In extremitate ejuſdem.	19	12	♊	2	14	A.	3
In origine cornu Septentrionalis.	6	35	♊	0	40	B.	5
In extremitate communis cum dextro pede Heniochi.	16	59 ſ.	♊	5	20	B.	
In aure duarum Borea.	2	54	♊	1	4		5
Auſtralior.	2	38	♊	0	35	B.	4
In collo duarum præcedens.	27	51	♊	1	12	B.	5
Quæ ſequitur.	0	28 ſ.	♊	0	46 ſ.	A.	6
In cervice quadrilateri præcedent. auſtrina.	0	4	♊	5	16	A.	6
Ejuſdem lateris borea.	29	45 ſ.	♉	7	55	A.	5
Sequentis lateris auſtralis.	2	34	♊	3	57	B.	5
Hujus lateris Borea.	2	25 ſ.	♊	5	45 ſ.	B.	5
Occidentalis lucidarum trium in Pleiadibus.	23	13 ſ.	♉	4	11	B.	5
Kepleri Catalogus.	23	50	♉				
Infima & occidentali proxima.	24	3	♉	4	2		6
Media & lucida Pleiadum.							
Vide in ſecundâ claſſe.							
Infra in Tauro.	24	24	♉	4	0	B.	3
Quæ in cuſpide ad ortum.	24	47	♉	3	55		5
In ungula pedis ſiniſtri.	19	57	♉	13	30	A.	6
Stellula in talo pedis ſequentis.	0	10	♉	12	2	A.	6
Quæ in armo dextro.	1	58 ſ.	♊	18	41	A.	5
Præcedens trium infra Suculas.	1	42	♊	6	56 ſ.	A.	5
Media earundem.	3	28	♊	7	4 ſ.	A.	5
Sequens.	4	55	♊	6	17	ſ.	5
Parvula in auſtrali cornu.	15	2	♊	1	4	A.	6
Sequens in eodem cornu.	16	55 ſ.	♊	1	20		6
Parvula ſequens quatuor in ſectione.	17	33	♉	9	35	A.	6

DENOMINATIO Stellarum.	Longitudo G. M. S.	Latitudo Gr.	Mag.
Duarum in quadrato colli præcedens.	29 22 ſ. ♉	6 33 A.	5

GEMINI.

DENOMINATIO Stellarum.	Longitudo G. M. S.	Latitudo Gr.	Mag.
In ſuperiori capite. Caſtor. Apollo.	14 41 ♋	10 2 B.	2
In inferiori capite. Pollux. Hercules.	17 43 ♋	6 38	2
In ſiniſtra manu præced. Gemini.	5 32 ♋	10 58	5
In ſiniſtro brachio.	9 54 ♋	7 43	4
In Scapulis ejuſdem.	13 24 ♋	5 42 ſ.	4
In dextro humero ejuſdem.	15 47 ♋	5 10 B.	5
In ſiniſtro humero ſeq. Gemini.	18 6 ♋	3 3 B.	4
In latere dextro præced. Gemini.	13 18 ♋	2 56	6
Stellula in ſiniſtro cubito ſuper ♊.	14 10 ♋	6 0 ſ	6
In boreali & ſupremo genu.	4 22 ♋	2 11 B.	3
In ſiniſtro genu ſequentis.	9 26 ♋	2 6ſ.A.	3
Quæ in ventre merid. ♊	12 56 ♋	0 13ſ.A.	3
In poplite inferioris ♊.	13 13 ♋	5 41	4
In pede præcedentis ♊ antecedens.	27 53 ♊	0 58	4
Sequens in eodem pede, dicta Calx.	29 44 ♊	0 53 A	3
In extremitate pedis dextri præcedentis ♊.	1 14 ♋	3 8	4
Lucida Pedis.	3 31 ♋	6 48 ſ.	2
In infimo pede ſequentis ♊.	5 29 ♋	10 9 A.	4
In calce pedis ejuſdem. *	7 56 ♋	9 41 A	6
Quæ eſt ſupra genu inferioris ♊. *	6 23 ♋	1 12 A.	6
In femore ſuperioris ♊ *	8 37 ſ. ♋	1 31 B.	6
Quæ infra caput inferius in manu. *	19 42 ♋	5 44 B.	6
Parvula inter utrumq; caput.	17 4 ♋	7 24 B.	5
Ad aurem ſuperioris ♊.	13 29 ♋	9 42 B.	5
Præcedens ad ſummum Pedem, προπὺς græcè.	25 22 ♊	0 13 A.	4
Præcedens quinq; inter ♊ infima.	17 2 ſ. ♋	5 52 A.	6

DENOMINATIO Stellarum.	Longit. G. M. S.	Latit. G.	Mag.
Sequens ſupra iſtam.	18 6 ♋	3 48ſ A.	6
Tertia.	19 30 ſ. ♋	2 42 A.	6
Quarta.	21 28 ♋	0 57ſ.A	6

CANCER.

DENOMINATIO Stellarum.	Longit. G. M. S.	Latit. G.	Mag.
Nebuloſa in pectore, quæ Præſepe vocatur.	1 46 ſ. ♌	1 14 B.	N
Borea præcedentium in quadrilateri Cancri.	29 49 ♋	3 31ſ.B.	5
Auſtralior.	0 9 ſ. ♌	0 47ſ.A.	5
Aſellus Boreus.	1 57 ♌	3 8 B.	4
Aſellus Auſtrinus.	3 8 ♌	0 4 A.	4
In brachio auſtrino.	8 3 ſ. ♌	5 8 A.	3
In brachio boreali.	0 40 ♌	10 23 B.	5
In extremit. Pedis borei.	23 59 ♋	1 15ſ.B.	5
In extremo pedis auſtr.	25 4 ♋	7 5 A.	3
Quæ in radice caudæ Lucidior.	25 45 ſ. ♋	2 18ſ.A.	4
Proximè ſequens in dorſo.	28 12 ſ. ♋	1 4 A.	6
Borealis trium in brachio Auſtrali.	6 47 ſ. ♌	1 54 A.	6
Auſtralis in eodem.	10 36 ♌	5 36 A.	5
Duarum in roſtro Septentrionalis.	5 27 ♌	7 14 B.	6
Inferior & auſtralis.	7 36 ſ ♌	5 20 B.	6

LEO.

DENOMINATIO Stellarum.	Longit. G. M. S.	Latit. G.	Mag.
In naribus.	9 41 ſ. ♌	10 23 B.	4
In hiatu.	12 16 ſ. ♌	7 52 B	4
In capite, duarum borealior.	15 51 ♌	12 21	4
Auſtralior	15 5 ♌	9 40	3
In collo trium borea.	21 57 ſ. ♌	11 50	3
Media & lucida colli.	23 59 ♌	8 47	2
Auſtralis.	22 20 ♌	4 52 B.	3
Cor. Regulus, Baſiliſcus.	24 17 ♌	0 26ſ.B.	1
In pectore auſtralior.	24 50 ſ. ♌	1 25ſ.A.	5
Antecedens Regulum proximè.	21 43 ſ. ♌	0 0 ſ.B.	4
Quæ hanc præcedit in genu dextro.	17 54 ſ. ♌	0 16 B.	5
In drace dextrâ.	16 7 ♌	3 10 A.	4
Sequens in altero pede.	18 40 ♌	3 47 A	4
In drace ſiniſtrâ.	23 46 ♌	3 55 A	4
In ſiniſtrâ axillâ.	0 48 ♍	0 8 B.	4

DENOMINATIO Stellarum.	Longitudo G.	M. S.		Latit. G.	′		
In ventre trium antec.	22	24	♌	2	10	B.	6
Sequentium Borealior.	2	6	♍	5	56	B.	6
Auſtralior.	4	5	♍	2	49	ſ.	6
Præcedens duarum in lumbis	3	14	♍	12	53		5
Quæ ſequitur Lucida.	5	41	♍	14	20		2
In clune duarum præcedens & borea.	7	50	♍	9	41ſ.	B.	3
Sequens Auſtrina.	9	8	♍	7	50ſ.	B.	6
In femore.	11	58ſ.	♍	6	7	B.	3
In genu poſteriori.	13	8ſ.	♍	1	40	B.	4
Media in pede.	15	57	♍	0	33	A.	4
Infima in pede.	19	27	♍	3	2ſ	A.	4
In extremo Caudæ lucida.	16	3	♍	12	18	B.	1
Extrema in ungula pedis ſiniſtri.	16	32	♌	4	48	A.	6
In ungula alterius pedis præcedentis.	16	1ſ.	♌	5	43	A.	5
Quæ in medio corpore ferè.	0	14	♍	10	17	B.	6
Parvula in capite.	16	13	♌	10	47	B.	6
Præcedens duarum in ſiniſtro pede poſteriore.	15	53	♍	7	39	A.	4
Sequens. Kepleri Catal. 18. 5.	18	50	♍	5	41	A.	5
Præcedens duarum informium ſuper dorſum.	26	22ſ.	♌	17	40	B.	5
Sequens.	29	57	♌	16	30		5
Supra lucidam dorſi.	4	54	♍	16	47		5
Supra caudam.	13	22	♍	17	19	B.	4
Borealis trium ſub ventre.	8	58		1	20	ſ.	4
Media.	8	30		0	6ſ.	A.	5
Auſtralis trium.	9	20	♍	2	29	A.	5

VIRGO.

Borealis præcedentium in quadrilatero capitis.	17	44	♍	6	6ſ.	B.	5
Auſtralis.	18	33	♍	4	37	B.	5
Sequentium duarum in vultu borea.	22	7	♍	8	33	ſ.	5
Auſtralis.	21	58	♍	6	10	B.	5
In extremo alæ auſtrinæ & Siniſtræ.	21	32	♍	0	43		3
Præcedens quatuor in ſiniſtra ala.	29	16	♍	1	25		4

DENOMINATIO Stellarum.	Longit. G.	M. S.		Latit. Gr.	′		
Altera ſequens.	4	35ſ	♎	2	50	B.	3
Penultima parva.	9	28ſ.	♎	2	23	ſ.	6
Ultima.	12	37	♎	1	45		4
In dextro latere ſub cingulo.	5	55	♎	8	41		3
In dextra & boreali alâ trium præcedens.	29	53	♍	13	36	ſ.	5
Reliquarum duarum Auſtrina.	1	52	♎	11	37	B.	6
Borealior, Vindemiatrix vocata.	4	23ſ.	♎	16	15ſ.	B.	3
In ſiniſtra manu. Spica ♍.	18	16	♎	1	59	A.	1
Sub Perizomate in clune dextra.	15	22	♎	8	10	B.	3
In ſiniſtra coxa, Boreaiſſima.	17	58ſ.	♎	3	11	B.	6
Sequent. duarum Borealior.	21	9ſ.	♎	1	45	B.	6
Auſtralior.	19	44	♎	0	19ſ.	A.	6
In genu ſiniſtro.	24	44	♎	2	24ſ.	B.	6
Borealior in ſupremâ fimbriâ duarum.	27	49	♎	11	2ſ.	B.	5
Media trium in fimbriâ.	:8	9	♎	7	18	B.	4
Infima & Auſtralis.	28	51	♎	2	58ſ.	B.	4
Auſtralior duarum in ſuperiori fimbriâ.	29	51ſ.	♎	11	48ſ.	B.	4
In auſtrali pede.	1	22	♏	0	31	ſ.	4
In boreali, ſeu dextro pede.	4	30	♏	9	49	B.	4
Inferior duarum inter Vindem. & Cing.	1	28	♎	10	26ſ.	B.	6
Sequens illam, quæ in clune dextrâ.	21	37ſ.	♎	9	40ſ.	B.	6
Quæ eſt in cervice.	27	45	♍	4	59ſ.	B.	6
Parva ſequens vindem.	8	25	♎	16	14		6
Præcedens trium in recta linea alæ boreæ.	10	11	♎	12	40	B	5
Media earundem.	14	46	♎	12	34	ſ	6
Sequens.	22	11	♎	13	7	ſ.	5
Quæ eſt inter 4um & 5um.	22	56ſ.	♍	3	22ſ.	B	6
Informis ſub brachio ſiniſtro.	6	38	♎	3	25	A.	5
Media.	10	39	♎	3	23	A.	5
Sequens.	14	8	♎	3	13	ſ.	5
Sequens trium ſub Spica.	17	13	♎	7	51	A.	5
Media verſus auſtrum.	19	35	♎	9	16		5
Sequens orientalis.	20	35ſ.	♎	6	16		5

DENOMINATIO Stellarum.	Longitudo G.	M.	S.	Latitudo Gr.	′	

LIBRA.

Lanx Auſtrina.	9	31	♏	0	26 B.	2
Quæ eſt ſupra auſtr. lancem.	8	42	♏	1	55 B.	5
Lanx Borea.	13	48	♏	8	35 B.	2
Quæ ſupra borealem lancem ad occaſum.	9	40 ſ.	♏	8	18 ſ.	4
Prima ab auſtrina Lance ad ortum.	12	26 ſ.	♏	1	14	5
Secunda ab eadem Lance ad ortum.	16	19	♏	2	58 ſ.	6
Tertia ab eadem Lance ad ortum	19	33	♏	4	28	3
Quæ eſt infra hanc ad Ortum.	21	48 ſ.	♏	4	4	4
Quæ eſt infra eandem ad occaſum.	19	27	♏	2	21	4
Quæ eſt infra boream Lancem ad ortum.	15	46	♏	8	7	4
Informis duarum infra Lancem auſtralem.	22	11	♏	0	2 ſ.	4
Earum inferior.	25	3 ſ.	♏	0	7	4
Præcedens trium ſequent.	24	16	♏	3	33 B.	4
Media.	24	48	♏	6	10 B.	4
Superior orientalis.	25	41 ſ.	♏	9	19 A	4
Sequens.	27	19	♏	10	57 A.	5
Sub boreali lance in ſiniſtro brachio.	15	27	♏	7	37 A.	3
Sequens.	15	17	♏	1	48 A.	3

SCORPIUS.

Suprema in fronte.	27	36	♏	1	5 B.	2
Media in fronte.	26	59	♏	1	54 ſ. A.	3
Auſtralis trium in fronte lucidior.	27	25	♏	5	22 ſ. A.	3
Quæ adhuc magis ad auſtrum in pede.	27	43 ſ.	♏	8	27 ſ. A.	4
Borealiſſima frontis.	29	3 ſ.	♏	1	42 B.	4
Parvula in △ cum lucida frontis & 5.	28	7	♏	0	14 B.	5
Lib. de Stella nova correxit Kepler.	27	57	♏			
Forte melius ſic.	28	2	♏			
Præcedens cor ad boream.	2	11	♐	3	55 A	4
In medio rutilans. Antares Cor ♏.	4	13	♐	4	27 A.	1

DENOMINATIO Stellarum.	Longit. G.	M.	S.	Larit. G.	′	
Quæ Cor ſequitur ad Auſtrum.	5	53	♐	5	50 A.	4
In præcedentibus inferioribus pedibus.	0	46 ſ.	♐	6	37 ſ. A.	5

SAGITTARIUS.

a. In cuſpide Sagittæ.	25	30	♐	Vide Claſ. in ♐		2
b. In manubrio ſiniſtræ manus.	28	51	♐			
In boreali parte arcus duarum auſtralior.	0	47 ſ.	♑	2	0 A.	4
Borealior in eadem parte arcûs	27	41 ſ.	♐	2	27 ſ. B.	4
In Siniſtro humero. c.	6	51	♑	3	31 A.	4
Antecedens hanc in jaculo d.	4	40	♑	3	50 A.	5
Trium in capite præcedens.	7	56 ſ.	♑	1	44 ſ. B	4
Media.	9	28	♑	0	59 B.	4
Ultima.	10	43	♑	1	31 B.	4
Prima in contactu.	12	44	♑	3	6 ſ.	6
In boreo contactu media.	13	54 ſ.	♑	4	17	4
Sequens & ſuperior.	14	11	♑	6	9 ſ.	5
Hâc orientalior duab. obſcuris, forma △ ſubjuncta.	19	8	♑	5	8	6
Orientalis & ultima in ſuperiori contactu.	22	52 ſ.	♑	5	12 B.	6
Obſcura in inferiori contactu ad ortum.	19	24	♑	1	25 B.	6
Obſcura in dextro cubito.	16	26	♑	3	8 A.	6

CAPRICORNUS.

Borealis trium in cornu præcedente.	28	18	♑	7	2 B.	3
Media.	28	51	♑	6	53	6
Auſtralis.	28	31	♑	4	41	3
Nebula ſupra cornu præcedens.	27	8	♑	7	16 B.	6
Nebuloſa occidentalis, baſis △ in fronte.	28	57	♑	0	48 ſ.	N
Nebuloſa orientalis.	29	41	♑	0	28 B.	N
Suprema in eodem △	29	37	♑	1	20	6
Nebuloſa præcedens in fronte.	27	13	♑	0	24	N
In cervice duarum borea.	2	49	♒	3	25	6
Auſtralis.	2	6	♒	0	15 B.	6
Præcedens in dextro genu obſcura.	1	47	♒	6	58 A.	6

DENOMINATIO Stellarum.	Longit. G.	M.	S.	Latit. G.	′		Mag.
Sequens in ſiniſtro genu.	2	28	♒	9	2	A.	6
In ſiniſtro armo.	6	13	♒	8	8		6
Infima in ventre.	11	24 ſ.	♒	6	56		5
Sequens borea duarum contiguarum ſub alvo.	12	0	♒	6	29	A.	6
Trium in medio ventris orientalior.	9	23	♒	4	25		6
Infima earum.	7	31	♒	4	27		6
Septentrionalis trium.	7	18	♒	3	1		5
Duarum in dorſo anterior.	8	21	♒	0	21	A.	5
Sequens earundem in dorſo.	12	7	♒	1	16	A.	5
Antecedens duarum ad ilia.	14	25	♒	4	48ſ.	A.	4
Sequens earundem.	16	6	♒	4	49		5
Duarum lucidarum in cauda præcedens.	16	14	♒	2	26		3
Sequens.	18	0	♒	2	29	A.	3
Antecedens in cauda ſuperiori.	18	14	♒	2	22	B.	5
Reliquarum in ſuperiori cauda Auſtralis.	20	27	♒	0	14ſ.	A	5
Præcedens hanc ad Sept.	20	16	♒	0	10	A.	6
Borea in extremo caudæ.	19	54	♒	4	17	B.	6

AQVARIVS.

In capite.	22	6 ſ.	♒	15	23	B.	6
In humero dextro clarior.	27	49 ſ.	♒	10	42		3
Obſcurior & Auſtralior.	26	36		9	11	ſ.	5
In humero ſiniſtro.	17	51		8	42	B.	3
Quæ in dorſo ſub axilla.	18	38		6	0	ſ.	5
Sequens & inferior trium in ſiniſtra manu.	10	51	♒	4	50		5
Media.	7	28 ſ.	♒	8	19		5
Antecedens lucidior.	6	12	♒	8	10	B.	4
In cubito dextro.	1	10	♓	8	17	ſ.	3
In dextra manu Borealior.	3	4 ſ.	♓	10	31		5
Reliquarum duarum auſtralium præcedens.	3	23	♓	8	52	ſ.	4
Sequens.	4	53	♓	8	10		4
In coryla dextra duarum præcedens.	27	45	♒	2	46	B	4
Sequens earum.	28	31	♒	2	29	ſ.	5
In dextro ſemore.	29	53	♒	1	10	A.	4

DENOMINATIO Stellarum.	Longitudo G.	M.	S.	Latit. Gr.	′		Mag.
Quæ eſt ad clunes.	23	13	♒	2	0	A.	6
Auſtralis in dextra tibia. Scheat.	3	22	♓	8	10	A	3
Borea ſeu quæ ad genu eſt.	3	5	♓	5	57	A.	5
In ſiniſtra coxa.	29	10	♒	5	40		6
In ſiniſtro genu duarum Auſtralior.	26	55	♒	10	48		5
Borealior.	29	50	♒	9	57ſ.	A.	6
In effuſione aquæ, à manu prima.	3	52	♓	4	8ſ	B.	4
Succedens auſtralis.	6	4	♓	0	19ſ.	A.	4
Sequens in primo flexu aquæ.	9	0	♓	1	24	A	5
Quæ eam comitatur.	11	38	♓	1	0	A.	5
In altero flexu auſtrali	11	33	♓	2	49		5
Præcedens & borealior duarum ſeq.	10	43	♓	3	58		5
Sequens & auſtralior.	11	11	♓	4	10	ſ.	5
Propè hanc in auſtrum declinans.	11	14 ſ.	♓	4	44		5
Poſt hanc duarum contiguarum præced.	14	7	♓	10	59	A.	5
Sequens earundem contiguarum.	14	38	♓	11	33		5
In tertio aquæ flexu borea trium.	13	3	♓	14	29	A	5
Media in tertio aquæ flexu.	13	46	♓	15	16	ſ.	6
Sequens trium & auſtralis.	14	44		16	23		6
Sequentium 3. borealis.	7	54		14	45	A.	5
Media trium earundem.	8	21		15	30		5
Auſtralis harum trium.	9	50	♓	16	31		5
In ultimo flexu trium ſuperior.	4	25	♓	14	25	ſ.	5
Media.	4	2	♓	15	40		5
Infima proxima FOMAHANT.	3	17	♓	15	53		5
Ultima in effuſione. FOMAHANT.	28	11 ſ.	♒	21	0	A.	1

PISCES.

In ore Piſcis auſtrini.	13	2	♓	9	4	B.	5
Duarum in occipite Auſtralis.	15	50 ſ.	♓	7	17ſ.	B	4

DENOMINATIO Stellarum.	Longit. G.	M.	S.	Latit. G.	′	
Borea in occipite.	17	30ſ.	♓	8	54ſ.	B. 6
Præcedens duarum in dorſo.	19	42		9	3	5
Sequens in dorſo.	21	56 ſ.		7	13 ſ.	5
Præcedens in alvo.	17	21	♓	4	27	5
Sequens in alvo.	21	5	♓	3	25	5
In cauda.	27	2	♓	6	23 ſ.	5
Supra hanc ad Ortum.	28	27	♓	7	27	6
Sequens.	2	29	♈	5	28 B.	6
In lino auſtrali lucidiorum trium præcedens.	8	36	♈	2	11 B.	4
Earundem media.	11	58		1	5 ſ.	1
Sequens.	14	19	♈	0	57ſ.B.	4
In flexu lini duarum exiguarum antecedens & borea.	12	25	♈	1	31 A	6
Earundem ſequens ad auſtrum.	13	46		4	19 ſ.	6
Poſt flexionem trium præcedens.	17	43	♈	3	3	5
Media.	19	56		4	40 ſ.	5
Sequens ultima.	21	57 ſ.		7	56 A	5
Lucidior in nexu amborum linorum.	23	47 ſ.	♈	9	4ſ.A.	3
In lino boreo à con nexu præcedens.	28	12	♈	1	38ſ.B.	5
Poſt hanc trium Auſtralis.	21	16	♈	1	51ſ.B.	5

DENOMINATIO Stellarum.	Longitudo G.	M.	S.	Latitudo Gr.	′	
Media & lucidior in nexu borea.	21	16	♈	5	21	4
Borea trium & ultima in lino..	21	36 ſ.	♈	9	24	5
Borea duarum in ore Piſcis borei.	23	15		22	0	6
Auſtralis.	22	49 ſ.		20	43 B	5
Borealis trianguli in capite.	19	22 ſ.		20	55	6
Auſtralis ejuſdem trianguli.	18	6	♈	19	24	6
Media & antecedens trianguli.	17	3	♈	20	24	6
In auſtrali ſpina, trium præced. prope Siniſtr. cubitum Andromedæ	17	56 ſ.	♈	13	21 B.	5
Media.	18	2 ſ.		12	21 ſ.	6
Infima trium.	18	9	♈	11	21	6
In alvo duarum borea	-3	18		17	-6 B.	5
Quæ magis ad auſtrum.	20	58 ſ.		15	30	5
Sequens mediam trium in auſtrali ſpina.	19	0	♈	12	27 ſ.	5
Sequens boream in alvo ad Septentrionem. *	24	11		18	31	6
In occipite borei piſcis Longimont. 25′.	21	41	♈	23	3 B.	6

PARS TERTIA CATALOGI COMPLECTITUR FIXARUM, quæ xv. imagines meridionales efformant, à Veteribus annotatarum partem potiſſimam.

CETE.

Quæ in roſtro.	9	31	♉	7	50 A.	4
Lucida mandibulæ Ceti.	8	47	♉	12	37	2
Media in ore.	3	53 ſ.		12	2 f	3
Præcedens trium ad genam.	2	2	♉	14	32	3
Quæ infra oculum.	1	54	♉	5	52	4
Quæ eſt ſupra oculum.	6	7	♉	5	36	4
In occipite.	28	29 ſ.	♈	4	19 A.	4
In pectore quadrilateri præced. borea.	24	9	♈	25	17 A.	4
Duarum inferiorum præcedens ad auſtrum.	24	32 ſ.	♈	28	31 A.	4
Sequentium in pectore Auſtralis.	28	11 ſ.	♈	28	16 ſ.	4
Præcedens & borealis.	27	47 ſ.		25	58	3
In ventre media.	12	25	♈	25	1 ♈	4
Infima in ventre.	13	50	♈	31	4	4
Borea ventris.	16	25	♈	20	19 ♈	3
Duarum lucidarum in dorſo Orientalis.	10	42 ſ.		15	46 ſ.	3
Ocidentalior earundem	6	11 ſ.	♈	16	55	3
Borealis caudæ.	25	23	♓	10	1 A.	3

DENOMINATIO Stellarum.	Longitudo G. M. S.	Latit. G. ′	Mag.
Auſtralis ſeu lucida caudæ.	26 55 ♓	20 47 A.	2
Lucidam Mandibulæ ad Ortum ſequens informis *.	12 45 ♉	14 30	5
Boream ventris præcedens ad auſtrum.	15 4 ſ. ♈	21 55	5
Quæ in recta linea cum III. & V. cap.	2 49 ſ. ♉	9 12 ſ. ♈	4

ORION.

DENOMINATIO Stellarum.	Longitudo G. M. S.	Latit. G. ′	Mag.
Suprema trium conjunctarum in capite. *	18 11 ſ. ♊	13 26 A.	4
Occidentalior. *	18 6 ſ. ♊	13 54	5
Tertia quæ ad Ortum. *	18 33 ſ.	14 4 ſ.	5
Sequens ſeu Lucidus Humerus.	23 12 ♊	16 6 A.	2
Siniſter ſeu præcedens Humerus.	15 23 ♊	16 53	2
Sequens in ſiniſtro humero.	16 47	17 22	5
Quæ in dextro brachio.	25 4 ſ.	14 51	4
In dextrâ ulnâ.	28 30 ſ.	11 30 A.	6
In manu dextra Auſtralior.	27 23 ſ.	9 15	4
Præcedens in dextra.	26 21 ♊	8 44	4
Proxima ſupremæ in dextrâ manu.	27 22 ♊	7 20 ſ.	6
Suprema & ultima earum quæ in manu.	28 8 ſ.	7 19	6
Præcedens duarum quæ in Gołorobo.	23 9	3 12 ſ.	5
Sequens earundem.	25 21 ſ.	3 21 A.	5
Quæ eſt infra dextrum humerum ad occaſum.	18 56 ſ.	19 17	5
Ex duabus obſcuris in dorſo ſequens.	17 40 ♊	19 36	6
Præcedens earundem.	16 46	19 52 ſ.	6
Quæ ex quatuor in dorſo præcedit.	15 34	20 8 ſ.	5
In Clypeo novem borealiſſima.	7 53 ♊	8 17 A.	4
Secunda.	8 48	9 7	4
Tertia.	8 10	11 6 A.	6
Quarta.	8 0 ♊	12 25 ſ.	4
Quinta.	6 49 ♊	13 3 ſ. A.	4
Sexta.	6 23 ♊	15 27	4
Septima.	6 33 ♊	16 50	4
Octava.	6 58	20 2 A.	4
Nona.	7 57 ♊	20 55	4
Prima Balthei.	16 50 ſ.	23 38	2
Media.	17 54 ♊	24 33 ſ.	2
Ultima.	19 6 ſ. ♊	25 21 ſ.	2
Quæ in Manubrio enſis.	14 37	25 36 ſ.	3
Suprema trium in enſe.	17 28 ♊	28 9 ſ.	5
Media enſis.	17 24	28 45	3
Auſtralis.	17 27	29 17	3
Præcedens duarum infra Enſem.	16 20 ♊	30 37 ſ.	4
Sequens duar. infra enſem.	18 23	30 38 A.	5
Lucida in ſiniſtro pede. Rigel.	11 17	31 11	1
Quæ in ſiniſtro calcaneo.	12 15	29 53	4
Quæ in ſurâ ſiniſtri pedis.	14 2 ♊	31 0	5
In genu dextro.	20 49 ſ.	33 8	3
Quæ ultimam balthei præcedit ad auſtrum *.	18 39 ♊	26 0 A.	4
Quæ ad dorſum eſt, hanc præcedens. *	14 34 ſ.	19 40	5
Sequens duarum ſuper manubrium Enſis.	14 45 ♊	24 6	6
Præcedens.	13 59	23 32	5
In ſiniſtro latere ſuper hanc.	14 57 ♊	21 23	5
Sub brachio & ſcuto præced.	11 58	20 8 A.	4
Duarum in ſiniſtro latere præcedens.	19 45 ♊	21 58	5
Sequens.	22 25 ſ. ♊	21 39	5
Poſt hanc informis.	24 10	22 57	5
Superior trium in ſiniſtra manu.	13 36 ſ.	11 45	6
Media.	11 33 ſ.	13 8 ♊	6
Auſtralis.	11 0 ♊	14 24	6
Decem informium ſupra Orienem præced. Piſcemas. ♋	28 44 ♊	29 31	4
Sequens. ♋	2 43 ♋	29 49	4
Supra hanc.	2 22 ♋	28 4 A.	5

DENOMINATIO Stellarum.	Longitudo G.	M.	S.	Latitudo Gr.	'		
Præcedens trium in lineâ rectâ. Piſerus 11'.	5	8	♋	18	47	A.	4
Media. Piſerus 16'.	2	58	♋	15	56	ſ.	4
Borealis.	4	50		13	55		4
Infra lineam rectam ad Auſtrum.	2	58		18	24		5
Supra hanc ad ortum.	6	36	♋	14	59		5
Præcedens duarum, quæ ſupra Canem majorem.	7	14	ſ	20	33		4
Sequens.	14	0	♋	22	47	A.	4

ERIDANUS. FLUVIUS.

Quæ ad ſiniſtrum pedem Orionis in principio Fluvii.	9	40	♊	31	35	A. ſ.	4
Supra pedem Orionis in fluvio.	9	42	♊	27	54	ſ.	3
Duarum aliarum ſequens	7	39	♊	29	52		5
Præcedens.	5	29 ſ.	♊	27	55		4
Sequens duarum ſuperiorum.	3	45 ſ.	♊	25	34		4
Præcedens earundem.	1	14 ſ.		25	11	ſ.	
Poſt intervallum ſequens ex quatuor.	18	58	♉	33	13 ſ.	A.	3
Quæ præit hanc.	15	22 ſ.	♉	31	9		4
Quæ ad Septentrionem eſt, ſeu tertia præced.	15	7	♉	28	46		3
Quæ omnes quatuor antecedit.	12	45	♉	27	47		3
Prima contiguarum cete.	3	50		24	34		3
Inter hanc & tertiam.	5	36	♉	23	58	ſ.	4
Tertia quæ ſequitur. Catalogus Kepleri repetit hic octavam.	8	16	♉	25	59	A.	3
Præced. & inferior. Piſerus 40'.	23	49	♉	30	25		5
Supra hanc.	23	53		27	32		4
Sequens.	24	58		28	9	ſ.	4
Superior Orientalis.	27	46	♉	25	3	A.	5
Præcedens duarum inter Eridanum & Taurum.	16	25 ſ.	♉	18	26	A.	4
Sequens Auſtralis.	20	7	♉	22	45	A.	4

LEPUS.

Superior præced. auris.	10	14 ſ.	♊	34	34	A.	5
Inferior ejuſdem auris.	10	20 ſ.	♊	35	54		5

DENOMINATIO Stellarum.	Longit. G.	M.	S.	Latit. G.	'		
Superior ſequentis auris.	12	27	♊	35	18	A.	6
Inferior ſequentis auris.	12	14	♊	36	14		5
Quæ eſt in capite.	9	46	♊	39	4		5
Extrema anteriorum pedum.	6	25 ſ.	♊	45	0		4
Quæ in dorſo, ſeu medio corpore.	15	49 ſ.	♊	41	5	ſ.	3
In armo ſiniſtro.	14	6	♊	43	57		3
Auſtralior duarum in poſterioribus pedibus.	19	25 ſ.	♊	45	49	ſ.	3
Borealior earundem.	21	36		44	58	A.	3
Præcedens in dorſo.	20	26		38	16		4
Sequens in dorſo.	23	27 ſ.		37	40	ſ.	4
Ultima in cauda.	26	22	♊	38	26	A.	4

CANIS MAJOR.

In ore ſplendidiſſima, SIRIUS vocata.	8	35 ſ.	♋	39	30	A.	2
Quæ in fronte ad dextram aurem.	19	1 ſ.	♋	34	50		4
In media fronte.	11	27	♋	36	43		5
Quæ ſub ſiniſtra aure.	14	6	♋	38	2	ſ.	3
In collo.	12	3	♋	39	30		4
In armo dextro anteriorum pedum.	6	32 ſ.		42	12	ſ.	5
Quæ in extremitate pedis prioris.	1	42 ſ.		41	18	ſ.	2
Quæ in dorſo.	15	30 ſ.		46	9	ſ.	5
Media in pectore.	12	56 ſ.		46	39	ſ.	5
Quæ in ventre,	17	55	♋	48	30	A.	3
In ventre inter poſteriora femora.	15	21 ſ.	♋	51	42	ſ.	3
Inferior dextri pedis priorum.	5	7	♋	51	46	ſ.	3
Quæ in caudâ.	24	11	♋	51	24 ſ.	♋	3

CANIS MINOR, PROCYON.

In collo.	16	39 ſ.	♋	13	33 ſ.	A.	3
In femore. Procyon.	20	18 ſ.	♋	15	57		2
Supra lucidam colli.	16	49	♋	12	51		6
Informis ſupra hanc.	16	42 ſ.	♋	9	46		6
Sequens ad caudam Cancri.	20	57 ſ.	♋	10	19 ſ.	A.	5

ARGO, NAVIS.

DENOMINATIO Stellarum.	Longitudo G.	M.	S.	Signum	Latit. G.	M.		Mag.
Quæ in ſuprema Puppi.	5	53	ſ.	♌	43	18	A.	3
Suprema clypei navis.	0	35	ſ.	♌	44	58	ſ.	3
Præcedens clypei.	28	0		♋	47	28		3
In velo.	4	6	ſ.	♌	32	7		4
Informis ad auſtrum.	4	27		♌	38	31		4
In Malo trium inferior.	12	26	ſ.	♌	32	56		6
Supra hanc.	12	51	ſ.	♌	30	18		4
Hâc ipſâ altior.	10	1	ſ.	♌	24	29	ſ.	4
Duarum in antenna præcedens.	29	26		♌	21	39	ſ.	4
Sequens.	4	20	ſ.	♍	22	29	ſ.	3
Informis inter velum & lacteam.	23	44		♍	30	30	A.	3

Has tres trajecit Grumbergerus ad finem Hydræ.

HYDRA.

DENOMINATIO Stellarum.	Longitudo G.	M.	S.	Signum	Latit. G.	M.		Mag.
Præcedens in capite.	5	39	ſ.	♌	14	37	A.	5
Supra primam ad Aquilonem.	6	45		♌	14	16	ſ.	4
Borealior in occipite.	6	48		♌	11	8		4
Quæ tertiam ad Auſtrum præit.	7	32	ſ.	♌	11	36		
Omnium in capite orientalior.	9	0	ſ.	♌	11	1		
Quæ in collo præcedit.	11	51	ſ.	♌	11	5	ſ	
Sequens in eductione colli.	14	41	ſ.	♌	13	5	A.	
Media colli & præcedens trium in nexu.	20	11		♌	15	0		
Borea trium in flexu colli.	22	4		♌	14	17	ſ.	
Auſtralis in nexu.	19	53	ſ.	♌	16	46		
Lucida Hydræ, ſive COR.	21	45	ſ.	♌	22	24		
Quæ proximè Cor ſequitur.	27	12		♌	26	33	ſ.	
Quæ hanc deinde ſequitur.	0	9		♍	26	12	A.	
Præcedens ex duabus contiguis ſupra hanc.	[illegible]	48		♍	23	19		
Sequens earundem.	3	53		♍	21	51		
Quæ à corde qui[illegible] eſt.	9	31	ſ.	♍	24	38		
Quæ in recta linea cum hâc & ſequenti.	12	41	ſ.	♍	23	31	A.	5
Cratêra proximè præced.	14	51		♍	21	48	ſ.	4
Informis, caput proximè præcedens.	4	45	ſ.	♌	12	27		4
Sub baſi Crateris Borealis.	23	1	ſ.	♍	25	36		4
Auſtralis.	23	49		♍	30	17	A.	5
Sub cauda corvi.	21	24		♎	13	43		3
Hanc præcedens parvula.	19	24		♎	14	37		6
Informis ante caput Hydræ.	28	44		♋	10	19	A.	3

CRATER.

DENOMINATIO Stellarum.	Longit. G.	M.	S.	Signum	Latit. Gr.	M.		Mag.
Quæ eſt in baſi Crateris.	18	13		♍	22	41	A.	4
Sequens duarum in medio.	23	43		♍	19	39		4
Præcedens earundem.	21	10	ſ.	♍	17	25		4
Præcedens duarum ſupra Craterem.	20	27		♍	13	10		4
Earum ſequens.	23	2		♍	11	17	A.	4
Præcedens duarum inferiorum. Piſer. 16′.	28	30		♍	18	10		4
Sequens.	0	33		♎	16	2		4
In medio Cratere.	24	55		♍	14	9	A.	5

CORVUS.

DENOMINATIO Stellarum.	Longit. G.	M.	S.	Signum	Latit. Gr.	M.		Mag.
Quæ ad oculum.	6	8		♎	19	39	A.	4
Præcedens duarum ſuperiorum in □.	5	13			14	25		3
Sequens earundem.	7	55			12	7		3
Sequens inferiorum in quadrato.	11	49		♎	17	59		3
In Roſtro.	6	38			21	46		4
In Collo.	8	14			18	14		5
In ſiniſtra ala ſupra Lucidam.	8	21	ſ.	♎	11	38	A.	5

CENTAURUS, CHIRON.

DENOMINATIO Stellarum.	Longit. G.	M.	S.	Signum	Latit. Gr.	M.		Mag.
In capite quatuor Auſtraliſſima.	1	27		♏	21	49	A.	5
Quæ magis in boream.	0	58		♏	19	8		5

DENOMINATIO Stellarum.	Longitudo G. M. S.	Latitudo Gr. ′	Mag.
Intermediarum duarum præcedens.	0 12 ♏	20 51 A.	5
Sequens & reliqua de quatuor.	1 3 ♏	A. 20 12	5

FINIS CATALOGI MILLE FIXARUM TYCHONIS BRAHE.

Secunda Claſſis fixas illas complectitur, quas de vetuſto Hipparchi *Catalogo, à* Ptolemæo *repetito & emendato,* Tycho *omiſit. Eas* Semi-Tychonicas *appellat* Keplerus*: requiſitas enim ex Codice* Ptolemæi, *adhibitâ etiam verſione* Trapezuntii, *Tubingæ ante annos 76. edita à* Schreckenfuchio, *reduxit* Keplerus *ad annum* 1600. *additione ad longitudinis loca à* Ptolemæo *prodita, tanti arcus, quantum* Tycho *addidit in aliquâ vicinâ clarâ; Latitudini vel additis vel ſubtractis ſcrupulis totidem, quot quovis loco major fuiſſe creditur Obliquitas Eclipticæ ſub* Ptolemæo*: ſic tamen ut rotundi numeri vicini ratio haberetur.*

Præſtare autem putavit Keplerus, *Græcum hic textum* Ptolemæi *propriùs ſequi, quam cum cæteris,* Prutenicas, Copernicum, *&* Alphonſinos, *qui Arabicam* Almageſti *verſionem ſecuti eſſe videntur; ut hoc pacto conferendi inter ſe verſiones occaſionem ſubminiſtraret; & quia incertum eſt, correxerintne* Arabes *in* Ptolemaicis *iſtis aliqua, an omnis verſionum diverſitas à tranſcriptorum incuria ſit orta. Paucæ ſunt, quibus* Keplerus *manum admovit, vel in Libro de Stella Serpentarii vel aliàs, quas charactere antiquo, monendi cauſa expreſſi, ut in* Rudolphinis *expreſſit* Keplerus.

DENOMINATIO Stellarum.	Longit. G. M. S.	Latit. G. ′	

In URSA minore informis *Clavii* (Signo falſo) eſt 8, *Tychonis.*

In URSA Majore 39. 40. 41. In exemplari *Kepleri* ſunt magnitudinis non 3. ſed 5, Latitudo gr. 34 59′. gr. 21 38′. gr. 20. 44′, & *Ptolemæi* octava informatarum inter eas eſſe videtur, quia Trapezuntius pro 0. ♋. habet 0. ♌.

In CEPHEO informis præced. Tiaram.	4 50 ♈	64 0 B.	5
In BOOTE, 10. Ptol. in venabulo.	28 45 ♎	45 45	4

DENOMINATIO Stellarum.	Longit. G. M. S.	Latit. G. ′	
In ENGONASI in coxâ ſiniſtrâ præced.	1 20 ♐	B. 55 55	5
Sequens.	2 30 ♐	58 15	5
Informis dextri brachii Auſtralior.	24 39 ♏	57 30 B.	5
In OLORE in dextro genu.	3 0 ♓	63 20	N
In PERSEO informis à ſiniſtro genu ad ortum.	2 10 ♊	17 50 B.	5

Nota Kepleri.

In OPHIUCHO, & deſunt multæ Ptolemaicæ, *& ſuſpectæ ſunt aliquæ, quas Cla-*

DENOMINATIO Stellarum.	Longitudo G.	M.	S.	Latit. G.	M.		

Clavius ex Piſero ſumpſit, qui aliis merum Catalogum Tychonicum *complexus eſt. Cùm tamen deſint in meo exemplari. Quarum altitudines & culminationes cum inſtrumentis ceperim. Catalogum ex Libro meo de Stellâ novâ tranſcribam, nihil præjudicans obſervatori diligentiori.*

In tecta trium ante pedem præcedens borea.	25	42	♏	9	27	B.	5
Media.	24	47	♏	6	42		5
Infima.	24	5	♏	3	45		5
Quæ præcedit genu anterius.	1	3	♐	13	34		5
Duarum inter pedes ſuperior.	6	51	♐	11	50		6
Inferior.	5	49	♐	4	38		6
Trium in crure anteriori Borea.	2	47	♐	5	42		4
o Media	2	7	♐	3	11	B.	4
p Auſtraliſſima.	1	45	♐	1	38		4
q In calcaneo pedis hujus.	4	4	♐	0	26		4
In femore ſequenti.	15	39	♐	17	28		5
m In cubito ſequenti.	19	2	♐	14	57		4
a a In pedis ſequentis tibia.	15	42	♐	1	57	B.	4
a In digito pedis.	14	7	♐	3	37	A.	4
In dorſo pedis.	14	47	♐	1	27	A.	5
b In plantâ, clara.	15	47	♐	1	43	A.	3
c In vola.	16	37	♐	0	59	A.	4
d e In calce ſeu talo.	18	5	♐	0	57	A.	4
Sequens pedem hunc.	20	4	♐	1	22	B.	4
Informis inter humer. Ophiuch. & Hercul.	26	27	♐	35	0	B.	4
b b Ad humerum Ophiuchi in Rhombo Borealiſſima.	25	7	♐	28	0	B.	4
c c Mediarum præcedens.	24	57	♐	26	40		4
d d Sequens.	26	50	♐	26	18		4
e e Infima.	25	40	♐	24	45		4
Stella nova anni 1604.	17	40	♐	1	56	B	4
Supra informatas ſolitaria.	27	50	♐	32	45		4
In SERPENTE. Quæ ſupra duplicem, octava *Ptolemæi.*	16	33	♏	26	36		4
In criſta.	18	9	♏	37	15		5
In ſpira, apex Iſoſcelis. Ptol. 13	15	0	♐	10	25	B.	4
Baſis præcedens. Ptol. 14.	19	23	♐	8	4	B.	4
Sequens. Ptol. 15.	20	9	♐	10	23		4
Supra caudam duarum Superior.	29	49	♐	26	38		[illegible]

DENOMINATIO Stellarum.	Longit. G.	M.	S.	Latit. Ge.			
Inferior.	1	39	♑	23	28		5
Infra caudam clara.	3	0	♑	15	49		4
Trium inter ultimas caudæ, prima.	2	0	♑	21	29		5
Media.	4	6	♑	22	42		5
Poſtrema.	6	40	♑	24	52		5
Proximè infra ultimam.	10	22	♑	25	2	B.	4
Sequens manum Ophiuchi	9	45	♏	16	0		5
In ANDROMEDA. In ſyrmate duarum Borea.	4	0	♉	34	40		4
Auſtrina.	5	30	♉	32	40		5
Inform. præced. tres in dextrâ manu	3	0	♉	44	0	B	3
In ARIETE. Trium informium Borea.	12	20	♉	12	44	B.	5
In extremo pede poſteriori.	6	0	♉	5	10	A	4

In TAURO. Obſervatio de Pleiade.

Nota Kepleri.

Commendat eam creber appulſus Lunæ & uſus in obſervatione antiquiſſimâ magni momenti. Igitur Tycho *ſolas 4. enumerat, & tamen primam earum non invenio in Obſervationibus. Etiamq; meum M. S. C. pr. gr. 23 13′ 30″. habet gr. 23 50′, quod* Bayeri *diſpunctio probat. Videtur indulta* Ptolemæo *longitudo tam parva, ut qui etiam, ad gr. 1 30′. diſlocat terminos* Pleiadis, *& ſic uſurpat in obſervatione* Tymocharidis*: cum tamen hæc non ferat tantam. Idem* Ptolemæus *exorſus à quadrilatero, deficit in ejus enumeratione, quartò adjiciens unam extra. Sunt tamen ſeptem, quas* Galilxus *in* Nuncio *exprimit. At meæ diſpunctiones diverſiſſimorum temporum, tribus* Tychonlcis *innixa, conſentiunt ſatis propinquè in hos numeros; ac ſi ſic in* Ptolemæo *ſit legendum.*

Tbe

DENOMINATIO Stellarum.	Longit. G.	M.	S.	Latit. G.	'	Magn.
Τῆς πλειάδος τὸ βόρειον πέρας.						
Τῆς ἡγουμένης πλευρᾶς.	24	5	♉	4	21 B.	
Τὸ νότιον πέρας τῆς ἡγουμένης πλευρᾶς.	23	50	♉	4	13	
Τῆς ἑπομένης τὸ βόρειον πέρας.	24	24	♉	4	3	
Τὸ νοτιώτατον πέρας τῆς πλευρᾶς, vel πλειάδος.	24	45	♉	3	55	
Ὁ ἐκτὸς τῆς πλειάδος, καὶ μικρὸς ἀπ' ἄρκτων. Ita deeſſent.	24	7	♉	4	25	
Ὁ ἡγούμενος αὐτοῦ συχνὰ ἐκλείπων.	24	0	♉	4	26	
Ὁ ἑπόμενος τῇ πλειάδι,	24	47	♉	3	55	6

Ac ſi ἡ πλειὰς ſit ratis, & contineatur ſolo quadrilatero. Et ſi etiam in ultimâ, obſervata altitudo calculum ſuperat. Omninò omiſſam eſſe unam, Summam 32. arguit, ſunt enim 33. Et magnitudinis primæ refertur una, tertiæ 6, cum clara Pleiadis non ſit minor eoq; ſeptima, tertiæ magnitudinis in ♉.

INFORMATÆ. Sub pede & armo dextro.	16	20	♉	17	30 A.	4
Trium ſupra auſtrale cornu præced.	11	0	♉	2	0 A.	5
Duarum ſub extremo Auſtr. cornu Bor.	20	0	♊	6	0 A.	5
Auſtrina. Schreckenſ. 20'.	20	0	♊	7	0 A.	5
Ex quinque ſub cornu Boreo præcedent. Schreck. 3. 0'.	18	0	♊	0	40 B.	5
Hanc ſequens.	20	0	♊	1	20	5
Hac iterum poſterior.	22	0	♊	1	40	5
Ultimarum duarum borea.	23	20	♊	3	40	5
Auſtralis.	24	20	♊	1	35 B.	5
In GEMINIS Quæ præcedit genu anterius clara.	27	45	♊	6	10 B.	4
In CANCRO. Supra flexum forcipis auſtrinæ.	11	20	♌	2	20 A.	4
Quæ ſequitur extremum forcipem auſtr.	13	20	♌	5	20 A.	4
In VIRGINE. In femore ♌ præced. Auſtralior in coxæ extrem.	18	0	♎	0	10 B.	6

DENOMINATIO Stellarum.	Longit. G.	M.	S.	Latitudo Gr.	'	Magn.
Ex libro Kepleri de Stella nova Serpentarii.	19	0	♎	8	30 B.	5
In LIBRA. Infra Chelam Auſtralem Borealior.	23	2	♏	8	42 A.	4
Auſtralior.	23	35	♏	10	20 A.	4
In SCORPIONE. In corpore, ſub vola r. pedis Serpentarii.	2	57	♐	1	50 A.	4
Quæ ſupra Cor.	4	12	♐	3	2	5
Supra præcedentem Cor.	2	1	♐	2	50	5
Infra eam in corpore poſterior.	2	21	♐	7	0	4
In primo Spondylo	8	4	♐	11	0	3
In ſecundo Spondylo.	9	44	♐	14	52	3
In aculeo caudæ.	18	29	♐	13	54	3
Ex Ptolemæo.. In 3. Spondylo Borealior (Clavio Auſtralior.)	11	10	♐	19	0 A.	4
Auſtralior (Clavius correxit Boreal.)	11	20	♐	18	20	3
Sequens in quarto Spondylo.	14	20	♐	19	50	3
Poſt eum in quinto Spondylo.	19	29	♐	19	10	3
Ulterior in Sexto Spondylo.	21	30	♐	17	0	3
Qui in ſeptimo Spondylo.	20	0	♐	15	30	3
Qui aculeum præcedit.	18	0	♐	14	0 A.	4
Informis aculeum ſequens	22	10	♐	13	40	N
Duarum ſupra aculeum, præcedens.	16	30	♐	6	30	5
Sequens Aliter 4.	20	30	♐	10	30 A.	5
In SAGITTARIO. Ex Lib. de ſtella nova Serpent.						
a In cuſpide Sagittæ.	25	20	♐	[illegible]	54	3
a Ex Ptolemæo. In Cuſpide Sagittæ.	25	40	♐	6	50	3
b In manubrio ſiniſtræ manus.	28	50	♐	6	50 A.	3

NOTA KEPLERI.

Has repeto ob Latitudinem, Diſtantias earum à nonâ Scorpionis, Latitudinis penè ejuſdem, inveni annotatas manu *Tychonis* ad obſervat. *Regiomontani*, anno 1465.

DENOMINATIO Stellarum.	Longit. G.	M.	S	Latit. G.	′		

19. Junii, ſed ſine Latitudine. Erant autem gr. 19. 37′½ & gr. 22. 58′. Secundum harum differentiam à Ptolemaicis, accommodavi & reliquarum Sagittarii Longitudines ex Ptolemæo.

In auſtrali parte arcûs.	29	10	♐	11	10	A.	3
In oculo nebuloſa duplex.	6	20	♑	0	25	B.	N
In humero dextro.	13	40	♑	2	10	A.	5
In Scapulis.	11	10	♑	2	50		5
e In armo. Tertia Trapezii c, d, e, f.	9	30	♑	4	40		4
f Sub axilla. Quarta Trapezii c, d, e, f.	8	0	♑	6	40		3
In Suffragine ſiniſtra priori.	8	50	♑	13	20	A.	2
In genu ejuſdem cruris.	8	10	♑	18	20		2
In priori dextrâ ſuffragine.	27	50	♐	13	20		3
In ſiniſtrâ ſcapulâ.	18	30	♑	13	50		3
In poſteriori dextro genu.	17	50	♑	20	30		3
In eductione caudæ □, ſeu Terebelli, Bor. lateris præcedens.	19	0	♑	5	10	A.	5
Sequens ejuſdem lateris	20	0	♑	5	10		5
Auſtrini lateris præcedens.	19	45	♑	6	10		5
Sequens ejuſdem lateris	20	50	♑	6	50		5
In AQUARIO. In dextro clune duarum Septentrionalior.	23	40	♒	4	10	A.	6
Trium informatarum, quæ poſt flexum aquæ, præced.	18	10	♓	15	40		4
Sequentium borealis.	21	10	♓	14	40		4
Auſtralis.	20	20	♓	18	20	A.	4
In PISCIBUS. Informium in □ ſub Piſce priore, borei lateris præced.	22	10	♓	2	45	A.	4
Sequens.	23	10	♓	2	25		4
Auſtralis lateris præced.	22	15	♓	5	35		4
Sequens.	23	20	♓	5	30		4
Quæ ſequuntur hoc □ prior.	*1	15	♈	4	36		5
Poſterior.	*6	10	♈	4	24		5
In CETE. Caudæ □ ſeq. lat. bor.	2	45	♈	12	10	A.	5
Auſtralis.	1	45	♈	14	10	A.	5

DENOMINATIO Stellarum.	Longitudo G.	M.	S	Latit. Gr.	′		
Antecedentis lateris borea.	0	30	♈	13	30		5
Auſtralis.	0	0	♈	14	30	A.	5

Ptolemæi *numeros correxit* Keplerus *ad circumſtantium* Tychonicarum *exemplum.*

In ERIDANO. Trium ultima.	27	20	♉	25	50	A.	1
Media. Ptol. 8. va.	26	40	♉	26	50		4
Ex quatuor quæ præit. 17. ma.	1	30	♉	23	10		4
In converſione fluvii ad pectus ceti.	26	10	♈	32	10		4
Sequens.	26	50	♈	34	50		4
Sequentium trium prima.	29	50	♈	38	30		4
Media.	4	50	♉	38	0	A.	4
Ultima.	8	30	♉	38	50		4
In □ præced. lateris borea.	12	20	♉	41	10		4
Auſtrina.	12	30	♉	42	20		5
Sequentis lateris antecedens.	13	10	♉	43	0	A	4
Ultima harum quatuor.	15	40	♉	43	10		4
Adorıom duarum conjunctarum borea. Alias 53° ♉.	25	10	♈	50	20		4
Magis in Auſtrum. Alias ♉.	26	0	♈	51	40		4
In Reflexione duarum poſterior.	19	10	♉	53	40		4
Præcedens.	16	50	♉	53	0		4
In ultimo intervallo ex tribus poſtrema.	8	50	♉	52	50		4
Media.	5	50	♉	53	20		4
Prima trium.	2	50	♉	51	50		4
In extremo fluminis.	21	10	♈	53	30	A.	1

Scaliger *ad* Tychonem *ſcribit, collocari hanc à ſuis Marinariis in gr.* 9. 45′ ♓, *Lat.* 59 30′ ½. *Hoc exprimit* Bayerus.

In CANE majore. In Pectore.	11	30	♋	42	20	A.	5
In genu auſtralis.	7	0	♋	44	10		5
In ſiniſtro genu duarum præced. Alias 20′.	5	0	♋	46	10		5
Sequens.	7	10	♋	45	30		5
In poplite cruris dextri.							
Informes circa Canem.	14	0	♋	54	50	A.	4
A Septentrione ad verticem Canis.	10	30	♋	25	0	A.	4

DENOMINATIO Stellarum.	Longit. G.	M.	S.	Latit. G.	′	Magn.
Sub pedib. poſteriori-bus 4. in rectâ lineâ Auſtr.	1	0	♋	61	10	4
Quæ magis in Boream.	2	20	♋	58	30	4
Quæ etiam hâc Septen-trionalior.	4	0	♋	56	40	4
Reſidua de 4. Borealiſ-ſima.	5	10	♋	55	40	4
Trium ad Occaſ. in li-nea præcedens. Ali-as 19°.	18	0	♊	55	10	4
Media.	21	20	♊	57	20	4
Trium ultima.	23	20	♊	59	30	6
Sub his duarum clara-rum ſequens.	20	0	♊	59	20 A.	2
Antecedens.	17	0	♊	57	20	2
Reliqua auſtralior præ-dictis.	13	10	♊	59	30	4
In ARGO. Extrema duarum præced.	2	0	♌	42	10 A.	5
Quæ magis ad auſtrum.	0	20	♌	45	40	4
Quæ has duas præce-dit.	27	0	♋	45	10	4
Sub ſcuto trium præce-dens.	27	0	♋	49	10	4
Sequens.	1	0	♌	49	30	4
Media trium.	0	10	♌	49	0	4
In extremo guberna-culo.	5	40	♌	49	30 A.	4
In carinâ puppis dua-rum borea.	25	40	♋	52	40	4
Auſtralis.	25	40	♋	58	20	3
In ſoliâ puppis Borea.	1	50	♌	55	20	5
In eodem ſolio trium præcedens.	3	50	♌	58	30 A.	5
Media.	4	50	♌	57	0	4
Sequens.	8	0	♌	57	30	4
Clara ſequens in tran-ſtro.	12	40	♌	58	30	2
Sub hanc duarum ob-ſcurarum præced.	9	40	♌	59	50	5
Sequens.	12	30	♌	59	10	5
Supra dictam ſulgen-tem duarum præce-dens.	14	30	♌	56	30 A.	5
Sequens.	15	40	♌	57	30	5
In ſtatione Mali borea trium.	26	50	♌	51	30	4
Media.	27	20	♌	55	30	4
Auſtralis trium.	25	10	♌	57	0 A.	4
Sub his duarum con-junctarum Borea-lior.	[illegible]	20	♍	59	50 A.	4
Auſtralior.	[illegible]	10	♍	61	0	4
In medio Mali duarum Auſtralis.	21	10	♌	51	30	4
Borea.	20	20	♌	49	0	3
In ſummo velo anterior Aliter 53°.	19	0	♌	43	10 A.	4
Sequens.	20	0	♌	43	30	4

DENOMINATIO Stellarum.	Longit. G.	M.	S.	Latit. G.	′	Magn.
Sub 3. ſeq. Scutum. Ali-ter 5° 54′	16	10	♌	51	30	2
In ſectione inſtrati.	8	30	♌	51	15	2
Inter remos in carina	12	40	♌	63	0	4
Quæ ſequitur hanc ob-ſcura.	10	0	♌	64	30	6
Lucida quæ ſequitur hanc inſtrationem.	21	0	♌	63	50	2
Ad auſtrum magis infra carinam ſulgens.	29	30	♌	69	40	2
Sequentium hanc trium antecedens.	6	10	♍	65	40	2
Media.	12	20	♍	65	50	3
Sequens. Aliter 65°. 50′.	17	0	♍	67	20	2
Sequentium duarum ad ſectionem præce-dens.	22	0	♍	62	50	3
Sequens. Aliter 65°.	29	0	♍	62	15	3
In temone borea præ-ced. Aliter. 23°.	25	0	♊	65	50	4
Quæ ſequitur. Aliter 17°.	11	10	♋	65	40	3
In temone reliqua præ-ced. Canopus. Ali-ter 69°.	8	0	♋	75	0	1
Reliqua ſequens hanc Aliter. 61°.	20	0	♋	71	45	3

IN HYDRA.

Borea duarum in ocu-lo.	4	20	♌	13	40 A.	4
Auſtralis earum & in hiatu.	7	0	♌	14	15	4
Ab auſtro duarum con-tiguarum Borea.	20	40	♌	19	45	6
In triquetro præce-dens.	3	40	♎	31	20	4
Media earum & Au-ſtralior.	6	0	♎	33	10	4
Sequens earundem tri-um.	7	40	♎	31	20	3
In extrema cauda.	6	0	♏	17	40 A.	4
A Capite ad auſtrum. Aliter. 13°.	4	0	♌	23	15 A.	3
Sequens collum. Ali-ter. 26°.	2	30	♍	16	0 A	3

IN-

IN CENTAVRO.

DENOMINATIO Stellarum.	Longit. G.	M.	S.	Latit. G.	M.		
In humero ſiniſtro & præcedente.	27	10	♎	25	40	A.	3
In humero dextro.	6	40	♏	22	40		3
In armo ſiniſtro.	0	10	♏	27	40		4
In ſcuto 4. præced. duarum Borealis.	9	10	♏	22	30		4
Auſtralis.	10	10	♏	23	50		4
Reliquarum duarum, quæ in ſummitate ſcuti.	13	0	♏	18	30	A.	4
Quæ magis in auſtrum	13	30	♏	21	10		4
In latere dextro trium præcedens.	4	20	♏	28	30		4
Media.	5	0	♏	29	30		4
Sequens.	6	10	♏	28	10		4
In brachio dextro.	7	20	♏	26	40		4
In dextro cubito.	13	50	♏	25	30	A.	3
In extrema manu dextra.	18	36	♏	24	20		4
In eductione corporis humani lucens.	9	0	♏	33	40		3
Duarum magis borealium obſc. ſequens.	8	40	♏	31	10		5
Præcedens.	7	50	♏	33	10		5
In eductione dorſi.	3	10	♏	35	0		5
Antecedens hanc in dorſo equi.	0	0	♏	37	50		5
In lumbis trium ſequens.	26	50	♎	40	10	A.	3
Media.	26	0	♎	43	10		4
Antecedens trium. Alit. 41°.	23	40	♎	44	10		5
In dextro femore duar. contiguat. præcedens.	23	40	♎	46	20		3
Sequens.	24	30	♎	46	50		4
In pectore ſub ala equi.	9	20	♏	42	50		4
Sub alvo duarum præced.	7	20	♏	43	10		2
Sequens.	8	40	♏	44	0		3
In poplite pedis dextri.	1	0	♏	51	20		2
In talo ejuſdem.	6	20	♏	51	50		2
In cavo pedis ſiniſtri.	27	20	♎	53	15		4
Sub maſculo ejuſdem.	2	10	♏	55	30		2
In ſummo pede dextro priori.	29	10	♎	41	20	A.	1
In genu Siniſtro.	15	10	♏	45	30		2
Sub dextro pede poſterioti.	5	40	♏	49	20	A.	4

IN LVPO.

DENOMINATIO Stellarum.	Longitudo G.	M.	S.	Latit. Gr.	M.		
In ſummitate pedis poſterioris ad manus Cent.	19	0	♏	25	0	A.	3
In poplite ejuſdem pedis.	16	50		29	20		3
In armo duarum præced.	12	0		21	30		4
Sequens.	25	10	♏	21	20		4
In medio corpore beſtiæ.	24	0		25	30		4
In alvo ſub ilibus.	28	10		27	20		5
In femore.	21	50	♏	29	20		5
In eductione femoris duarum borealis.	25	40		28	50		5
Auſtralis.	24	40		30	30	A.	5
In ſummo lumbo.	26	40	♏	33	30		5
In extremâ caudâ trium Auſtralis.	13	0		31	40		5
Media.	15	50	♏	30	50		4
Septentrionalis trium.	14	0		29	40		4
In jugulo duarum auſtralis.	29	50	♏	17	20		4
Borea.	0	20	♐	15	40		4
In rictu duarum præced.	26	40	♏	13	40		4
Sequens.	27	40	♏	12	10		4
In priori pede duarum Auſtralior.	18	10		12	10		4
Quæ magis in Boream.	17	30	♏	10	20	A.	4

IN THVRIBVLO.

In baſi duarum borealis.	18	50	♐	23	0	A.
Auſtralis.	24	20	♐	26	0	
In media arula.	17	30	♐	26	45	
In foculo trium Borealis. Aliter. 31°.	11	40	♐	30	40	
Reliquarum duar. contiguar. Auſtralis	16	20	♐	34	30	
Borea.	16	10	♐	33	30	
In ſummitate flammæ Aliter 31°.	12	0	♐	34	30	

DENOMINATIO Stellarum.	Longit. G.	M.	S.	Latit. G.	′		
IN CORONA AUSTRALI.							
Ad ambitum auſtr. ſoris præcedens. Aliter 24°.	0	20	♑	21	50	A	4
Quæ hanc ſequitur in corona.	2	50	♑	21	20		5
Sequens hanc.	4	20	♑	23	20		5
Quæ etiam hanc ſequitur.	6	0	♑	20	20		4
Poſt hanc ante genu Sagittarii.	7	20	♑	18	50		5
Quæ inde maximè boreæ in genu lucens.	8	10	♑	17	30	A.	4
Magis borea.	7	30	♑	16	20		4
Adhuc magis in Boream.	7	40	♑	15	30		4
In ambitu boreo duarum ſequens.	6	20	♑	15	40		6
Præcedens.	5	50	♑	15	10		6
Ex intervallo præcedens has.	3	0	♑	15	0		5
Quæ etiam hanc antecedit.	0	50	♑	16	10		5
Reliqua magis in auſtrum.	0	20	♑	18	50	A.	5

DENOMINATIO Stellarum.	Longit. G.	M.	S.	Latit. G.	′		
IN PISCE NOTIO.							
In notio ambitu capitis trium præced.	21	50	♒	20	35	A.	4
Media.	25	20	♒	22	30	A.	4
Sequens.	26	30	♒	22	45		4
Quæ ad branchiam.	25	30	♒	16	30		4
In ſpina auſtrali atq; dorſo.	16	20	♒	19	50		5
In alvo duarum ſequens.	22	20	♒	15	30		5
Antecedens.	20	0	♒	15	0	A.	4
In ſpina ſeptentr. ſequens trium.	16	20	♒	15	15		4
Media.	13	0	♒	16	45		4
Præcedens trium.	12	10	♒	18	25	A.	4
In extrema cauda.	11	20	♒	22	30		4
Præcedentium Piſcem, quæ anteit.	29	10	♑	22	40		3
Media.	2	20	♒	22	30		3
Sequens trium.	5	10	♒	21	30		3
Quæ hanc præcedit obſcura.	5	0	♒	21	10		5
Reliquarum ad Septentrionem duarum Auſtralior.	3	10	♒	17	20		4
Quæ magis in Boream.	5	0	♒	15	10	A.	3

Finis Catalogi Ptolemaici.

TERTIA CLASSIS STELLARUM FIXARUM,

Duodecim imagines cœleſtes complectens, quæ in Zona noſtra temperata Septentrionali planè non conſpiciuntur. Has* Johannes Bayerus *in* Uranometriâ *ſuâ,* Americo Veſpucio, Andreæ Corſâlio, *&* Petro Medinenſi; *primis Europæorum, acceptas fert, primùmq; à* Petro Theodori *ad normam Aſtronomicam correctas aſſerit. Ex* Bayeri *verò Tabulis & Mſſc. ultimis, eaſdem* Jacobus Bartſchianus Luſatus, *juvenis induſtrius, & bonis de Globo cœleſti meritis dudum celebris, in numeros & chartam conjectas (floſculum decerptum ex* Uranographiâ Schillerianâ, *Chriſtianarum imaginum, cujus editionem ex ultimâ voluntate autoris maturat) olim* Auguſta Ulmam *ad* Keplerum *tranſmiſit: pollicitus ſe deinceps chartas, inducendo globo ſeſquipedali, perfectiſſimas, cum imaginibus antiquis, quòd inſtituto* Tychonis *accommodatius eſt in publicum editurum.*

DENO-

DENOMINATIO Stellarum.	Longit. G.	M.	S.	Latit. G.	M.		

GRUS.

Lucida capitis.	11	52	♓	22	50	A.	2
In collo medio.	11	53	♒	24	56		6
In eductione colli Orientalior.	13	23	♒	28	57		6
Occidentalior.	14	34		28	40		6
In dorſo orientalior.	14	59	♒	31	52		6
Occidentalior.	16	14		31	35		6
In dextrâ alâ Borealior.	23	13	♒	34	23		5
Auſtralior.	22	44		36	15		4
In lævâ alâ.	10	35	♒	32	57		2
Quæ in caudæ eductione.	16	53		34	36		2
In cauda, trium Borealior.	15	25	♒	39	20		4
Orientalior.	13	21		41	36		5
Occidentalior.	17	45		41	27	A.	4

PHOENIX.

In collo lucida.	9	11	♓	40	10	A.	2
Adjacens parvula.	8	49	♓	41	30		5
In ancone alæ dextræ.	3	14	♓	41	40		4
In alâ dextrâ trium Auſtralior.	28	24	♒	39	45		4
Media.	29	14	♒	35	50		5
Borealior.	0	34	♓	32	0		5
In extremâ alâ ſiniſtrâ.	22	44	♓	47	30		3
In eiuſdem eductione.	9	4	♓	44	10		4
Ad pedem dextrum trium Orientalior.	5	29	♓	45	10		N
Occidentalior.	6	59	♓	45	40		N
Auſtralior.	5	39	♓	46	0		4
In foco ſub alâ dextrâ duarum ſuperior.	2	34	♓	53	0		4
Inferior.	6	54	♓	54	40	A	4

INDUS.

In capite.	27	36	♑	32	30	A.	4
In axillâ lævâ.	29	49	♑	36	55		4
In lævæ manûs Sagitta prima.	3	6	♒	37	0		4
Secunda.	5	4	♒	38	35	A.	4

DENOMINATIO Stellarum.	Longitudo G.	M.	S.	Latit. Gr.	M.		
Tertia.	4	21	♒	40	0	A.	4
In ſummâ parte ſagittæ manus dextra.	23	16	♑	27	55		5
In imâ.	13	36	♑	32	35		5
In axilla dextra Occidentalior.	22	56	♑	33	45		6
Sequens.	23	36	♑	33	53		6
Orientalior.	22	24	♑	33	40		6
In pectore.	23	34	♑	36	0		5
In ventre.	21	14	♑	39	15	A.	4

PAVO.

In capite lucida.	16	45	♑	36	0	A.	2
In collo ſuperior.	16	59	♑	40	40		6
Media.	18	14	♑	41	20		6
Inferior.	15	59	♑	41	45		6
In pectore.	20	29	♑	48	30		3
In radice alæ dextræ.	15	14	♑	46	32		3
Adjacens parvula.	13	49	♑	47	0		N
In mediâ alâ ſeu dorſo.	10	24	♑	45	20		3
Adjacens nebuloſa.	8	29	♑	46	5	A.	N
In eductione cauda prima.	1	54	♑	45	40		5
Secunda.	0	21	♑	44	0		5
Tertia.	0	27	♑	43	0		5
Quarta.	0	44	♑	39	35		5
Quinta.	28	14	♐	41	30		5
Sexta.	27	39	♐	40	30		5
Septima.	26	49	♐	39	20		5
Octava.	3	29	♐	41	20		5
Nona & ultima.	18	34	♐	42	20		4
In dextro pede Auſtralis.	8	9	♑	50	0		4
Borealis.	11	4	♑	49	20		6
In ſiniſtro pede.	17	59	♑	50	25		6
In extrema caudæ. Aliis infr.	1	4	♑	48	27		6
In eadem.	26	51	♐	51	40	A.	5

APUS, AVIS INDICA.

In capite quibuſdam informis.	17	9	♐	44	40	A.	5

DENOMINATIO Stellarum.	Longit. G.	M.	S.	Latit. G.	′		
In collo.	16	49	♐	48	6	A.	5
In eductione caudæ trium Borealis.	16	11	♐	54	20		5
Media.	11	51	♐	55	0		5
Auſtrina.	14	46	♐	55	45		5
In cauda verſus △ duarum ſuperior.	7	24	♐	51	30		6
Inferior.	6	39	♐	52	0	A.	
In mediâ caudâ trium Borealior.	8	47	♐	57	10		5
Media.	7	36	♐	57	57		6
Auſtralior.	8	14	♐	59	20		4
In eadem verſus Chamæleontem unica.	12	16	♐	61	25	A.	4

APIS, MUSCA.

In capire.	15	34	♏	54	0	A.	4
In alâ dextrâ.	15	29	♏	56	25		4
In alâ læva.	21	39	♏	56	5		4
In caudâ.	19	33	♏	57	30	A.	4

CHAMÆLEON.

In prioribus pedibus.	0	3	♐	62	40		5
Ad collum.	24	44	♏	63	20		5
In dorſo.	23	29	♏	67	0		5
In poſteriorib. pedibus.	29	57	♏	67	25		5
In eductione caudæ orientalior.	29	4	♏	70	38		5
Occidentalior.	1	34	♐	70	35		5
In mediâ caudâ ſuperior.	26	44	♏	73	0		5
Inferior.	24	49	♏	73	15		5

TRIANGULUM.

Sequens baſis verſus Apodis collum.	12	56	♐	46	20	A	3
Superior verſus Lupum in cuſpide.	4	6	♐	41	0		3
Adjacens parva.	7	16	♐	40	40		5
Baſis præcedens verſus Apodis caudam.	2	56	♐	48	30		3
Quæ ſupra hanc parva.	3	36	♐	44	15		5

PISCIS VOLANS, PASSER.

DENOMINATIO Stellarum.	Longit. G.	M.	S.	Latit. G.	′		
In capite.	18	19	♎	72	26	A.	5
In medio corpore.	23	5	♎	77	12		6
In caudâ.	5	48	♏	82	5		5
In alâ lævâ ſuperior.	12	10	♎	75	20		6
Inferior.	18	43	♎	82	14		6
In alâ dextra ſuperior.	4	49	♏	76	21		6
Inferior.	10	19	♏	79	28		6

DORADO, XIPHIAS.

In capite.	25	21	♎	86	53		4
In branchiis.	29	57	♑	87	0	A.	5
In ventre.	29	29	♉	88	12		5
Supra dorſum.	23	39	♉	84	46		4
In extimâ caudâ.	9	14	♉	76	15		4
Nubecula major ſecundum medietatem.	29	39	♑	84	0	A	
Adjacens huic.	16	39	♑	82	31		5

TOUCAN, ANSER AMERICANUS.

In extremo roſtro.	3	54	♒	45	55		3
In eductione roſtri ſive capite.	14	51	♒	48	15		3
In ancone alæ ſiniſtræ ſeu ad pectus ſuperior.	13	59	♒	54	15		4
Inferior.	12	54	♒	55	45		5
In mediâ alâ.	14	45	♒	58	20	A.	3
In dorſo.	20	59	♒	57	50		3
In caudâ.	21	24	♒	61	30		4
In rami folio ſeu nvæ myriſtica.	1	9	♒	49	55		4

HYDRUS.

In capite.	3	59	♓	64	5	A.	3
In collo ſuperior.	10	29	♓	71	40		4
Colli trium inferior.	11	54	♓	70	25		4
Converſionis Colli prima.	29	54	♒	71	12		4
Secunda.	16	54	♒	70	30		5
Tertia.	24	39	♒	67	50		5
Quarta.	20	9	♒	64	0		5
Quinta.	5	40	♒	65	0	A.	5

DENOMINATIO Stellarum.	Longit. G.	M.	S.	Latit. G.	′	
Sexta.	25	5	♑	64	55 A.	4
Septima.	17	51	♑	60	0 A.	5
In prima caudæ converſione Auſtr.	14	14	♑	58	10	5
Borea.	12	24	♑	56	0	5
In ſecundâ caudæ converſione antepenultima.	11	49	♑	62	40	5
Penultima.	7	29	♑	64	30	5
Ultima.	4	14	♑	64	0	5
Nubeculæ minoris medietas.	4	39	♒	67	0 A	5
Inter hanc & majorem Inform. Borealis.	7	24	♒	72	20	6
Auſtrina.	4	24	♒	78	30	4
Quæ ſupra 8. & 9. Hydri.	3	16	♒	61	20	5
Infra collum Hydri ſuperior.	15	46	♓	75	30	4
Inferior.	29	55	♓	80	0 A.	6

Hactenus Bartſchianus *Catalogus.*

FINIS

CATALOGI FIXARUM.

OBSERVATIONUM ASTRONOMICARUM

SYNOPSIS Compendiaria.

In quâ omnes præcipuæ Obſervationes, quas omnium Seculorum *Aſtronomi* fecerunt, comprehenduntur.

Cui additus eſt *Calculus* Locorum *Planetarum*, & *Eclipſium Solis* & *Lunæ*, juxta *Tabulas* noſtras *Aſtronomicas*; quâ quidem ratione etiam & Veritas *Tabularum* eluceſcat.

Vireſcit Vulnere Virtus.

Authore

VINCENTIO WING Mathematico.

LONDINI,

Typis *J. M.* pro *G. Sawbridge*, 1668.

OBSERVATIONUM ASTRONOMICARUM
Synopſis Compendiaria.

PRÆFATIO.

UT Tabularum noſtrarum Veritas omnibus quàm manifeſtè appareat, haud abs re fuerit, ſi omnes præcipuæ Obſervationes, quas Aſtronomi omnibus ſeculis à tempore *Hipparchi* huc uſq; fecerunt, produceremus: tametſi verò multum ſit ambiguitatis obſervationibus Veterum factis, attamen illas imponam, & conſenſum noſtrarum Tabularum cum illis demonſtrabo: Poſtea illas quas Aſtronomi quàm clari nominis fecerunt, animadvertemus, & præcipuè illi, hoc, & priore ſeculo, in quo *Divina Urania* maximè ſplenduit. At quia Verus Solis motus (qui reverâ ineſt Terræ) eſt tanquam Baſis & fundamentum *Aſtronomiæ*, ſuper quam omnes Planetarum motus & loca dependunt, adeo ut niſi perfectam loci ejus cognitionem inveſtigamus, loca aliorum obtinere difficile fuerit; cum eo igitur imprimis incipiam, & ſic ſtellis fixis procedam, quæ (præterquam Sol) ſunt optima fundamenta ob Aſtronomiæ reſtaurationem; tum alios Planetas contemplabo, quo demonſtrabo quàm accuratè Tabulæ noſtræ Aſtronomicæ illis obſervationibus congruunt, quas optimi Aſtronomi fideliter fecerunt, ut *Tycho*, *Longomontanus*, *Bullialdus*, noſtratiumq; notiſſimus *Edvardus Wright*, & alii. Deniq; ordine juſto, Eclipſes pertractabo, in quibus multas obſervationes noſtratibus exquiſitè factas quæ non adhuc in publicum venerunt, producemus, quo ſtabile fundamentum propter ampliorem *Aſtronomiæ* reſtitutionem collocabitur in ſeculis ſuccedentibus, ſi tunc neceſſarium exiſtimabitur. Hoc autem judico, quòd nulla accuratior via ad componendas Tabulas Aſtronomicas inveniri poterit quàm hîc perficitur, ſummoperè in inveſtigatione Apheliorum & Eccentricitatum Planetarum; attamen agnoſco plures obſervationes temporibus futuris multa in lucem adferre quæ nunc adumbrantur. Deniq; Lectorem animadvertere deſiderem, quòd quia *Ptolomæus* & *Veteres* talibus Inſtrumentis propter obſervationem carebant, ut hæc poſterior ætas profuſè miniſtravit, & quoq; cœleſtes motus non accuratè attendere potuerunt, hinc evenit quòd loca Planetarum ut illi annotârunt multùm à veritate diſcrepant, quòd obſervationibus locorum Stellarum fixarum illuceſcat, ſi accurato *Tychonis Catalogo* comparantur, ita ut congreſſu Planetarum priſtinis iſtis temporibus maximè uſi ſumus, quia illis plus ineſt certitudinis quàm in aliis, ſolus enim oculus ſine ullo auxilio veritatem ejus patefaceret. Non diutiùs verò in hæc ſubſiſtam, ſed nunc (ut indicavi) obſervationibus veri Solis loci perveniemus.

Obſervationum

Obſervationum Solarium Examen. § 1.

Æquinoctia Autumnalia ab Hipparcho olim obſervata ſub Meridiano Alexandrino Ægypti.

Obſervationes Solares Hipparchianæ.

Poſt obitum Alexandri. Anno, Menſe, Die, Momentum.					Sub Meridiano Londinenſi.	Loc. Sol. verus ex Tabulis	Differentia ab obſerv.
					Ho. ′.	gr. ′ ″	′
1	163	Meſeri	30	occaſu Solis	3 24 pomerid.	0 27 34 ♎	27 $\frac{1}{2}$ +
2	166	Intercal.	1	manè	3 24 antemer	0 13 52 ♎	13 $\frac{3}{4}$ +
3	167	Intercal.	1	in meridie.	9 24 antemer	0 14 19 ♎	14 $\frac{1}{3}$ +
4	177	Intercal.	3	ult. med noct.	9 24 pomerid.	0 4 9 ♎	4 +
5	179	Intercal.	4	manè	3 24 antemer.	0 4 35 ♎	4 $\frac{1}{2}$ +
6	182	Intercal.	4	veſperi	3 24 pomerid	29 50 55 ♍	9 −

Æquinoctia Vernalia ab Hipparcho Alexandriæ obſervata.

Poſt obitum Alexandri Anno, Menſe, Die, Momentum					Sub Meridiano Londinenſi.	Loc. Sol. verus ex Tabulis.	Differentia ab obſerv.
					Ho. ′	gr ′ ″	′
1	178	Mechir	27	mane h. 5. & poſt h. 11.	8 24 antemer.	29 56 43 ♓	3 $\frac{1}{4}$ −
2	189	Mechir	29	ult. med. noct.	9 24 pomerid.	29 49 29 ♓	10 $\frac{1}{3}$ −
3	195	Phamen.	1	in occaſ. Solis.	3 24 pomerid.	29 52 40 ♓	7 $\frac{1}{3}$ −

10. *Albategnius Arabs* obſervavit Æquinoctium Autumnale *Aractæ Syriæ* anno ab obitu Alexandri 1206. octavo die *Pachon*, quatuor horis cum dodrante ante ortum Solis. Hoc eſt anno Chriſti 882. *Septemb.* 18. hor. 9. 55′ ſub Meridiano *Londinenſi*, cui debentur hi motus. Obſervatio Albategnii, anno 882

		Sig.	gr.	′	″
Medius motus Solis à verno Æquinoctio		6	2	0	6
Apogæum	Subtr.	2	23	25	41
Anomalia Eccentri media		3	8	34	25
Æquatio abſoluta	Subtr.		2	2	8
Locus itaq; Solis verus erat in gr.			29	57	58 ♍

11. Præterea ait *Nicolaus Cardinalis de Cuſa*, quod anno Chriſti 1290. die 13 *Martii* inventus ſit Sol intrare in principium Arietis poſt horas 16, id eſt die 13 horis 16 à meridie diei præcedentis 12. quare hoc Æquinoctium (ut rectè obſervavit Doctiſſimus, veréq; Aſtronomiæ meritiſſimus *Iſm. Bullialdus*) cadit in annum 1290. diem 12 *Martii*, hor. 16. (more Aſtronomico) in Meridianis per *Galliam*, & *Angliam* tranſeuntibus; quo tempore congruunt hi motus. Obſervatio veri loci Solis, anno 1290.

	Sig.	gr.	′	″
Longitudo Solis media ab Æquinoctio verno	11	28	1	49
Apogæum Solis	3	0	24	14
Anomalia media	8	27	37	35
Æquatio addenda		2	2	55
Longitudo Solis vera		0	4	44 ♈.

Mm 2

12. *Prophatius Judæus* & quidam alii Obſervatores invenerunt ingreſſum Solis in Arietis principium, anno Chriſti 1303. die 12 *Martii*, hor. 20. circiter. Hoc eſt *Meridiano Londinenſi* ho. 19. 36′.

	Sig.	gr.	′	″	
Medius motus Solis tunc erat	11	28	1	45	
Apogæum	3	0	37	34	
Anomalia media	8	27	24	11	
Æquatio addenda		2	2	55	
Locus Solis verus ab Æquinoctio verno		0	4	40	♈

13. Quinetiam ex collatis Obſervationibus *Bernardi Waltheri*, reperit ille *Tycho*, Æquinoctium vernum anno 1488. incidere in diem 10 *Martii*, hor. 15. 40′.

	Sig.	gr.	′	″	
Longitudo Solis media	11	27	59	1	
Apogæum	3	3	47	35	
Anomalia media	8	24	11	26	
Proſtaphæreſis Solis add.		2	2	40	
Locus Solis verus ab æquinoctio verno		0	1	41	♈

Vera loca Solis à *Tychone* diligentiſſimè obſervata, & hic juxta *Tabulas* noſtras *Britannicas* computata.

I. Juxta Æquinoctium vernum.

ſervationes
ri loci Solis
m Urani-
gilfactæ, à
Tychone
he.

Num.	Temp. Uraniburgi Ann. Menſ. dies	Loc. Solis obſ. gr. ′ ″	Loc. Sol. ex tab. gr. ′ ″	Differentia.
1	1583 Martii 14	3 17 40 ♈	3 18 6 ♈	$\frac{1}{2}$ +
2	1584 Martii 11	1 5 35 ♈	1 5 13 ♈	$\frac{1}{3}$ −
3	1585 Martii 13	2 48 15 ♈	2 49 24 ♈	1 $\frac{1}{6}$ +
4	1586 Martii 11	0 37 0 ♈	0 36 27 ♈	0 $\frac{1}{2}$ −
5	1587 Martii 12	1 21 30 ♈	1 21 23 ♈	0
6	1588 Martii 12	2 5 0 ♈	2 6 18 ♈	1 $\frac{1}{4}$ +
7	1589 Martii 11	0 53 5 ♈	0 52 37 ♈	0 $\frac{1}{2}$ −
8	1590 Martii 11	0 37 10 ♈	0 38 15 ♈	1 +
9	1593 Martii 10	29 54 43 ♓	29 55 5 ♓	0 $\frac{1}{3}$ +
10	1594 Martii 10	29 38 45 ♓	29 40 42 ♓	2 +
11	1596 Martii 11	1 7 45 ♈	1 10 36 ♈	2 $\frac{1}{4}$ +
12	1597 Martii 10	29 56 20 ♓	29 56 53 ♓	0 $\frac{1}{2}$ +

II. Circa

II. Circa Æquinoctium Autumnale.

	Temp. Uraniburgi Ann. Menſ. Dies	Loc. Solis obſ. gr. ′ ″	Loc. Sol. ex tab gr. ′ ″	Different: ′		
1	1583 Septemb. 13	29 36 0 ♍	29 35 20 ♍	0	1/3	−
2	1584 Septemb. 12	29 21 57 ♍	29 21 2 ♍	0	1/4	−
3	1585 Septemb 10	27 9 20 ♍	27 9 3 ♍	0	1/4	−
4	1586 Septemb. 13	29 51 45 ♍	29 51 24 ♍	0	1/4	−
5	1587 Septemb. 12	28 36 30 ♍	28 38 13 ♍	1	1/4	+
6	1588 Septemb. 12	29 23 30 ♍	29 23 57 ♍	0	1/2	+
7	1589 Septemb. 9	26 11 15 ♍	26 12 3 ♍	0	1/4	+
8	1590 Septemb. 12	28 53 30 ♍	28 54 18 ♍	0	1/4	+
9	1592 Septemb. 10	27 26 15 ♍	27 26 54 ♍	0	1/3	+
10	1594 Septemb. 13	29 56 30 ♍	29 55 1 ♍	1	:	−
11	1596 Septemb. 14	1 24 10 ♎	1 24 22 ♎	0	1/3	+

III. Secundum Medietatem ♉

Nu.	Temp. Uraniburgi. Anni, Menſ. Dies	Loc. Solis obſ. gr. ′ ″ S.	Loc. Sol. ex tab. gr. ′ ″ S	Differentia.
1	1582 Aprilis 27	16 25 30 ♉	16 24 24 ♉	1 − 6
2	1583 Aprilis 26	15 10 40 ♉	15 12 37 ♉	1 57
3	1584 Aprilis 30	19 46 45 ♉	19 47 24 ♉	0 + 39
4	1585 Aprilis 26	15 41 10 ♉	15 42 26 ♉	1 + 10
5	1586 Aprilis 27	16 26 50 ♓	16 26 15 ♉	0 − 35
6	1587 Aprilis 29	18 8 10 ♉	18 7 48 ♉	0 − 22
7	1588 Aprilis 27	16 56 30 ♉	16 56 1 ♉	0 − 29

IV. Juxta Medietatem ♌.

Nu.	Temp. Uraniburgi. Anni, Menſ. Dies.	Loc. Solis obſ. gr. ′ ″ S.	Loc. Sol. ex tab. gr. ′ ″ S.	Differentia.
1	1582 Julii 28	14 14 35 ♌	14 15 26 ♌	0 + 51
2	1584 Julii 28	14 46 45 ♌	14 45 7 ♌	1 − 38
3	1585 Julii 27	13 19 10 ♌	13 33 41 ♌	Error Obſ.
4	1587 Julii 27	13 4 15 ♌	13 5 51 ♌	1 + 36
5	1589 Julii 29	15 30 35 ♌	15 30 37 ♌	0 + 2
6	1610 Sept. 12	28 3 45 ♌	28 4 27 ♌	0 + 42

Obſervationibus hiſce *Tychonicis*, alias à Doctiſſimo Aſtronomo & Mathematico *Edvardo Wright* allatas, ut noſtrarum Tabularum Veritas affatim eluceſceret, ſubjungemus.

Obſervationes

Obſervationes veri loci Solis extra Æquinoctia & Solſtitia LONDINI habitæ à D. E. W. per amplum Quadrantem ligneum ſeptem pedum (reſpectu Radii) exquiſitè diviſum; unà cum loco Solis ex Tabulis noſtris Aſtronomicis, ſupputato.

Obſervationes 32. veri loci Solis Londini factæ à D. *Edvard. Wright.*

Nu.	Temp. Londini. Anni,	Menſ.	Dies.	Loc. Sol. obſerv. gr.	′	″	S.	Loc. Sol. ex tab. gr.	′	″	S.	Differentia.		
1	1594	Julii	6	23	23	0	♋	23	21	28	♋	1	−	32
2	1594	Julii	25	11	29	52	♌	11	30	32	♌	0	+	40
3	1594	Auguſt.	7	24	1	0	♌	23	59	32	♌	1	−	28
4	1594	Sept.	17	3	50	42	♎	3	53	10	♎	2	+	28
5	1594	Octob.	5	21	39	36	♎	21	42	24	♎	2	+	48
6	1594	Octob.	18	4	42	42	♏	4	41	54	♏	0	−	48
7	1594	Novem.	7	24	54	12	♏	24	51	48	♏	2	−	24
8	1595	Martii	17	6	21	45	♈	6	23	7	♈	1	+	22
9	1595	April.	8	27	54	16	♈	27	54	56	♈	0	+	40
10	1595	Maii	3	22	2	40	♊	22	4	20	♊	1	+	40
11	1595	Julii	31	17	0	3	♌	17	1	51	♌	1	+	48
12	1595	Auguſti	19	5	18	14	♍	5	20	37	♍	2	+	23
13	1595	Sept.	11	27	44	27	♍	27	45	5	♍	0	+	38
14	1595	Octob.	9	25	25	27	♎	25	27	6	♎	1	+	39
15	1596	Martii	13	3	10	48	♈	3	11	16	♈	0	+	28
16	1596	Febr.	13	4	18	6	♓	4	18	27	♓	0	+	21
17	1596	Febr.	29	20	17	12	♓	20	18	13	♓	1	+	1
18	1596	April.	24	14	9	40	♉	14	8	23	♉	1	−	17
19	1596	Maii	4	23	45	4	♊	23	45	38	♊	0	+	34
20	1596	Auguſti	10	27	24	24	♌	27	22	50	♌	1	−	34
21	1596	Auguſti	30	16	44	40	♌	16	45	46	♌	1	+	6
22	1556	Sept.	14	1	25	10	♎	1	26	29	♎	1	+	19
23	1596	Sept.	27	14	15	18	♎	14	16	21	♎	1	+	3
24	1596	Octob.	4	21	11	35	♎	21	13	26	♎	1	+	51
25	1597	Martii	11	0	57	48	♈	0	58	21	♈	0	+	33
26	1597	Martii	21	10	49	50	♈	10	49	40	♈	0	−	10
27	1597	Julii	5	22	38	18	♋	22	39	59	♋	1	+	41
28	1597	Auguſti	9	26	11	36	♌	26	10	59	♌	0	−	37
29	1597	Sept.	22	9	3	26	♎	9	5	10	♎	1	+	44
30	1597	Octob.	6	22	58	13	♎	22	58	25	♎	0	+	12
31	1597	Novem.	3	21	6	26	♏	21	5	22	♏	1	−	4
32	1596	Julii	30	16	50	10	♌	16	47	54	♌	2	−	16

Una Obſervatio *Riccioli Bononiæ* facta.

Anno 1646. Septemb. die 12. ſtylo veteri, Doctiſs. vir *Ricciolus* (cum P. *Franciſco* M. *Grimaldo*) magnis Quadrantibus *Bononiæ*, invenit altitudinem meridianam Solis, gr. 45. 44′. 40″. Vera autem Altitudo erat 45°. 46′. 19″. Parallaxis enim altitudinis fuerat 1′. 39″. addenda, & refractio nulla, vel inſenſibilis. Elevatio autem Æquatoris *Bononiæ* (quæ à *Ricciolo* plus quàm quadragies à circumpolari ſtellâ capta eſt) gr. 45. 30′. 30″. ergò declinatio Solis Borea erat, 15′. 49″. hinc datus eſt locus Solis verus in gr. 29. 20′. 23″. ♍

Medius

	S	gr.	′	″
Medius motus Solis	6	1	21	51
Apogæum	3	6	30	25
Anomalia media	2	24	51	26
Proſtaphæreſis ſubtr.		2	2	1
Locus Solis verus	♍	29	19	50

Qui cum Obſervatione *Riccioli* congruit.

§. II.

De Stellis Fixis.

QUandoquidem in omnibus Obſervationibus *Timocharidis*, *Hipparchi*, *Ptolomæi*, cæterorumq;, qui tunc temporum vixerunt, cum *Sacra Aſtronomia* in cunabulis vagiebat, parum ſit certitudinis; quoniam & Inſtrumentorum ſatis exquiſitorum egeni fuerunt, & expeditam methodum Cœleſtium Obſervationum faciendi haud amuſſim calluerunt, quapropter loca ſtellarum ad gradum perrarò invenêrunt, ut collatione Obſervationum antiquarum temporibus illis factarum percipiamus. Idcircò difficile nimis videtur vera loca *Apheliorum* & *mediorum motuum* Planetarum in temporibus illis antiquiſſimis accuratè inveſtigare, præſertim cum nobis pellucidè innotuit quam egregiè omninò locis & interval is fixarum Stellarum computandis deerrârunt: quod perſpicuè certiſſimis animadverſionibus *Tychonis*, aliorumq; Aſtronomorum confirmatur. Cum igitur jamjam locum Solis in illis temporibus remotiſſimis ad veritatem quantum Obſervationes pollicerentur, emendavimus. Proximè loca Stellarum Fixarum trutinabimus, & à collatione locorum omnibus ſeculis poſt obitum *Timocharidis*, ad veritatem proculdubio propè accedamus; & quamvis nonnihil erroris in aliquibus *ante Chriſtum* Obſervationibus deliteſcat, tametſi (*Ptolomæo* unico excepto) noſtram inter reſtaurationem, & illorum Obſervationes cunctis ſeculis parùm diſcordiæ inveniemus, quapropter ſubſequentes locorum eorum Obſervationes, & illarum differentiam Tabulis à noſtris Aſtronomicis accipito.

Nulla certitudo aut fides Obſervationibus illis antiquiſſimis adhibenda eſt.

Synopſis locorum Stellarum fixarum longa per ſecula obſervatorum.

Obſervationes Stellarum fixarum, variis in ſeculis factæ.

Varii Authores	Anni Nab.	Nomina Stellarum	Locus ſtellarum obſ. S	gr.	′	Locus Stellarum ex Tab. S	gr.	′	″	Differ. ab obſervat. ′	″	
Timocharis	455	Spica Virginis	♍	21	59	♍	21	43	21	15	39	−
Timocharis	455	Suprem. in fron. ♏	♏	2	0	♏	1	2	30	57	30	−
Timocharis	458	Pleiades	♈	27	55	♈	27	54	41	0	19	−
Timocharis	467	Spica Virg.	♍	22	10	♍	21	52	36	17	24	−
Hipparchus	619	Cor Leon.	♋	29	50	♌	0	2	12	12	12	+
Hipparchus	621	Spica Virg.	♍	23	59	♍	24	2	53	3	53	+

Varii Authores.	Anni Chriſti.	Nomina ſtellarum.	Loc. ſtell. obſervat.			Loc. Stellarum ex Tab.				Differ. ab obſervat.		
			S.	gr.	′	S	gr.	′	″	′	″	
Menelaus	99	Spica Virg.	♍	26	15	♍	27	12	22	57	22	+
Ptolemæus	139	Cor Leon.	♌	2	30	♌	3	47	1	77	1	+
Ptolemæus	139	Spica Virg.	♍	26	43	♍	27	46	1	63	1	+
Ptolomæus	139	Cor Scorp.	♏	12	40	♏	13	43	1	63	1	+
Albategnius	879	Cor Leon.	♌	14	5	♌	14	9	28	4	28	+
Azophus	937	Cor Leon.	♌	15	12	♌	14	58	13	13	47	—
Tab. Peric.	1115	Cor Leon.	♌	17	30	♌	17	27	56	2	4	+
Ebenneſophim	1364	Cor Leon.	♌	20	40	♌	20	57	22	17	22	+
B. Waltherus	1504	Spica Virg.	♎	16	40	♎	16	54	6	14	6	+
Wernerus	1514	Spica Virg.	♎	16	53	♎	17	2	32	9	32	—
Copernicus	1525	Spica Virg.	♎	17	21	♎	17	11	47	9	13	—
Tycho Brahe	1501	Spica Virg.	♎	18	16	♎	18	15	43	0	17	—

Loca Fixarum Ptolomaica in Zodiaco non ſine ſuſpitione erroris aliquot minutorum, *Kepl.* in Com. de motibus Stellæ ♂ fol. 326.

Hic multum incertitudinis in Veterum Aſtronomorum Obſervationibus percipiamus, & præſertim in illis *Ptolomei*, qui judicio anteceſſoris ſui *Hipparchi* nimis otioſè acquievit, & præterea in Obſervationibus veri loci Solis impegerit, nec Refractionem illius ſatis perpendit, quâ emendatâ à *Longomontano* (ut in *Commentario de Stellis fixis*, *fol.* 194. compertum eſt) collegit ſecundum Obſervationem *Ptolomei*, anno Chriſti 139. Cor Leonis in gr. 3. 53′. ♌ fuiſſe, cum *Ptolomæus* tunc temporis illum collocat in gr. 2. 30′ ejuſdem Signi. Ut verò tempori noſtro propiùs accedamus, inveniemus intervallo 200 annorum jamjam præteritorum manifeſtam diſcrepantiam inter authores qui Cœleſtibus obſervationibus antecelluerunt, fuiſſe, anno enim 1504. *Bernardus Waltherus* obſervavit *Spicam* ♍ in gr. 16. 40′ ♎, quam Stellam *Wernerus*, anno 1514. invenit in gr. 16. 53′, & *Copernicus*, an. 1525. in gr. 17 21″ ejuſdem Signi. Jam verò perſpicuè innotuit ex Obſervationibus *Tychonis*, quòd tam *Waltherus*, quam *Wernerus* loca earum nimis deprimebant, quæ haud multò poſt *Copernicus* promovit, & veritate majora ſcr. 9′ aut 10′ reddit, etiamſi exquiſitiſſimus tunc temporis ſcrutator habebatur: quapropter ut has differentias citiùs componeremus, mediam preſſimus ſemitam, hoc enim tanquam ex tripode dictum, in medio conſiſtit virtus. Cujus rei gratiâ collocavimus primam Arietis Stellam principio annorum *Nabonaſſari* in gr. 24. 42′. 45″. ♓.

§. III.

Obſervationes Lunæ.

Obſervationes veri loci Lunæ.

JAm ad *Lunam* pedetentim procedimus, & quamvis ſecundarius ſit Planeta, tametſi ob rationes lib. 4. allatas, methodum illinc depoſitam perſequemur. Quoniam verò (ut nuperrimè diximus) Obſervationes Veterum Aſtronomorum perquàm fallaces ſunt, haud multas deponemus, aſt illas *prænobilis Tychonis* affatim inſeremus.

Orientalior Lunæ limbus occultavit ſpicam Virginis.

1. Anno *Nabonaſſari* 454. die 5. Menſis *Tybi*, Hor. 8: veſperi, *Timocharis* animadvertit *Alexandria*, quòd *Luna* limbus Orientalior ad *Spicam Virginis* ex diametro perveniſſet, eamq; occultaſſet cum gr. 15. Cancri fuit in medio Cœli. *Ptol. lib.* 7. *cap.* 3. *Almageſti, ſeu operis magni.*

Solis.

SOLIS.	S	gr.	′	″		
Medius Solis motus	11	12	33	44	Declinatio ☉	gr. 6. 6′ M.
Apogæum	2	3	17	15	Horoſcopus	gr 13. 39′ ♎.
Anomalia media	9	9	10	29	Grad. 90.	gr. 13. 39 ♋.
Proſthaphæreſis Eccentri		2	0	33	Medium Cœli,	gr. 14. 33 ♋.
Verus locus Solis	♓	14	34	17		

LUNÆ	S	gr.	′	″		S.	gr.	′	″
Medius motus	5	17	41	28	Anom. correcta	10	26	5	1
Apogæum	6	24	30	11	add.	2	23	58	33
Anomalia media	10	23	2	17	Anomalia Synod.	1	20	3	34
Proſthaphæreſis add.		2	54	16	Log. chordæ Evectionis	126401			
Locus ☽ primò æquatus	5	20	35	44	Log. diſtantiæ ☽	362236			
Anomalia æquata	10	25	56	33	Numerus Logarithmic	764165			
Diſtantia ☽ à ☉	6	6	1	27			°	′	″
Duplicata diſtantia	0	12	2	54	Reflectio add.		0	8	28
Reflectio add.			8	28	Evectio ſubtr.		0	11	16
Anomalia correcta	10	26	5	1	Æquatio 2 ſubtr.		0	2	48
Æquatio 2ª ſubtr.		0	2	48	Lat. ☽ vera M. D.		1	46	54
Locus ☽ in Orbita	5	20	32	56	Declinatio Lunæ		2	5 Bor	
Nodus Boreus	6	11	25	59	A R. Soli		345	48	
Anomalia Latitudinis	11	9	6	57	A R. Lunæ		170	41	
Reductio add.			4	40	A R. M. C.		105	48	
Locus Lunæ verus	5	20	37	36	Altitudo Lunæ		22	29	3

Erat diſtantia Lunæ à vertice gr. 67. 30′. 57″. Parallaxis altitudinis Lunæ 52′. 16″. Parallaxis Longitudinis 50′. 39″ in Ortum. Parallaxis Latitudinis 13′. 52″ in Auſtrum. Ergo Centrum Lunæ conſpiciebatur in gr. 21. 28′. 15″ ♍, cum Latitudine gr. 2. 0′. 46″. Limbus autem Orientalior Lunæ tenuit gr. 21. 43′. 43″ ♍, nam Semidiameter ejus vera fuit 15′. 28″. At *Spica Virginis* erat in gr. 21. 42′. 59″ ♍, cum Latitudine gr. 1. 59′ Auſtrinâ; tetigit ergò Spicam Orientalior Lunæ Limbus, quemadmodum *Timocharis Alexandriæ* obſervavit.

2. Anno *Domitiani* duodecimo, à *Nabonaſſaro* 840. die 2. Menſis *Tybi*, in principio Horæ 3. noctis, Aſtronomicè verò, Hor. 7. 0′. à Meridie, *Agrippa* conſideravit in *Bithynia* (ſub Latitudine gr. 43.) quòd Luna jam radiis cooperuerat partem Pleiadum meridianam ſequentem, cornu ſuo Meridiano, ſeu ut *Lansbergius* exponit, viſa eſt obtinuiſſe Succedentem, auſtrinamq; *Vergiliarum* partem.

Obſervatio *Agrippæ* in *Bythinia* facta, anno *Nabonaſſari*, 840.

Locus Verus Solis tunc erat in gr. 7. 13′, 34″ ♐.

	S.	gr.	′	″		S	gr.	′	″
Medius motus	0	29	39	20	Anomal. correct.	11	0	29	15
Apogæum	2	1	2	41	Subtr.	1	24	56	27
Anomalia media	10	28	36	39	Anomal. Synod.	9	5	32	48
Proſthaphæreſis add.		2	30	41	Logar. Chordæ Evect.	200227			
Anomalia æquata	11	1	7	20	Logar. diſtantiæ ☽	362328			
Locus ☽ æquatus	1	2	10	1	Num. Logarithmicus	837899			

Locus Solis	8 7 13 34		gr. ′ ″
Diſtantia ☽ à ⊙	4 24 56 27	Reflectio Subtr.	0 38 5
Duplicata diſtantia	9 19 52 54	Evectio Add.	1 21 42
Reflectio Subt.	38 5	Æquatio 2. Add.	0 43. 37
Anomalia correcta	11 0 29 15	Latit. ☽ vera S.D.	4 58 50
Æquatio 2ª. add.	43 37	A.R. Solis	245 23
Locus ☽ in Orbita	1 2 53 38	A.R. Lunæ	28 57
Nodus Boreus	9 20 44 59	A.R. M. C.	350 23
Anomalia Latitudinis.	3 12 8 39	Gradus Nonageſ.	12 32 ♈.
Reductio Add.	2 53	Altitudo Lunæ	48 24
Locus ☽ in Ecliptica	1 2 56 31	Parallaxis Altitudinis ☽	37′ 42″

Parallaxis Longitudinis Lunæ erat Scrup. 15′, 10″ addenda, Parallaxis Latitudinis, Scrup. 34′. 30″ ſubtrahenda; itaq; locus Lunæ viſus fuit in gr. 3. 11′. 41 ♉, cum latitudine gr. 4 24′, 20″ boreá: Locus mediæ *Pleiadum* erat in gr. 3. 15′. 14″ ♉, cum latitudine gr. 4, 0′ borea: locus autem orientis Pleiadum in gr. 3, 38′, 14″ ejuſdem Signi, cum latitudine gr. 3. 55′. Ergo Luna cooperuit partem Vergiliarum, & viſa eſt contingere, cornu ſuo Auſtrino, ſequentem meridianamq; partem Pleiadum; omnibus modis, ut *Agrippa* in *Bithynia* conſpexit.

Spica ♍ à Lunæ interventu cooperta, An. *Nabonaſſ.* 845. Romæ.

3. Anno *Cæſaris Trajani* primo, à *Nabonaſſaro* 845. die 15, tranſacto Menſis *Mechir*, apud complementum Horæ 10 noctis, vel Hor. 16. 57′. Aſtronomicè, *Menelaus* Menſurator animadvertit *Romæ*, ſub latitudine gr. 42. 2″. quòd Luna jam cooperuerat Spicam Virginis, & non apparuit uſq; ad finem horæ undecimæ. Poſtea apparuit Stella poſterior *Centro* Lunæ cum minore ſpatio diametro Lunæ, & fuit ejus Elongatio à duobus cornibus Lunæ æqualis.

LUNÆ	Sig. gr. ′ ″		S. gr. ′ ″
Medius motus	5 19 36 41	Anom. correcta	8 25 49 57
Apogæum	8 29 12 54	add.	25 48 8
Anomalia media	8 20 23 47	Anomalia Synod.	9 21 38 5
Proſtaphæreſis add.	4 54 26	Log. Chord. Evection.	219743
Anomalia æquata	8 25 18 13	Log. Diſt. ☽ ab umbilic.	360498
Longitudo ☽ æquata	5 24 31 7	Numerus Logarithm.	859245
Locus Solis verus	9 20. 19 15		gr. ′ ″
Diſtantia ☽ à ⊙	8 4 11 52	Reflectio add.	0 31 44
Duplicata diſtantia	4 8 23 44	Evectio add.	2 3 6
Reflectio add.	31 44	Æquatio ſecund. add.	2 34 50
Anomalia adæquata	8 25 49 57	Latitudo ☽ vera M.D.	1 19 34
Æquatio ſecundaria add.	2 34 50	Altitud. med. Cœli	45 16
Locus ☽ in Orbita	5 27 5 57	Angulus meridian.	66 37
Nodus Boreus	6 11 48 13	Alt. Orb. ☽ in Nonag.	47 32
Argumentum Latitudinis	11 15 17 44	Diſt. ☽ à Nonageſ.	11 49
Reductio add.	3 28	Parallaxis ☽ Horizont.	58 29
Locus ☽ in Ecliptica	5 27 9 25		

Erat ergo Parallaxis Longitudinis 8′. 50″ addenda, & Parallaxis Latitudinis 39′. 29″ ſimilitèr addenda: apparebat igitur Centrum Lunæ in gr. 27. 18′. 15″ ♍, cum latitudine auſtrina gr. 1. 59′. 3″. Differentia itaq; Longitudinum centri Lunæ & Stellæ fuit Scrup. 6′. 42″. Differentia Latitudinum Scrup. 0′. 3″, & proinde diſtantia Stellæ à centro Lunæ, Scrup. 6′, 42″, at Semidiameter Lunæ erat 16′. 7″, adeo ut Stella fuit intra Lunæ limbum Scr. 9′. 25″. Obtexit ergo *Luna Spicam Virginis*, quemadmodum *Menelaus Romæ* conſpexit.

Collatio

Collatio Locorum Lunæ olim à Tychone obſervatorum, cum Tabulis noſtris Aſtronomicis.

Obſervationes 18. Tychonianæ.

Temp apparens Londini.					Locus Sol. ex Tabulis.	Locus Lunæ obſervat.	Locus Lunæ ex Tabulis	Differ.
Nu.	An.	Menſ	Dies	Ho. ′	S. gr. ′ ″	S. gr. ′ ″	S. gr. ′ ″	′ ″
1	1586	Sept.	22	14 17	♎ 9 20 34	♊ 7 25 0	♊ 7 32 19	7 +
2	1587	Jan.	9	6 6	♑ 29 19 23	♊ 1 0 30	♊ 1 2 30	2 +
3	1587	Jan.	14	12 48	♒ 4 41 55	♌ 10 39 0	♌ 10 41 45	2 +
4	1587	Jan.	15	14 13	♒ 5 46 33	♌ 25 38 30	♌ 25 41 34	3 +
5	1587	Aug.	17	18 23	♍ 4 5 35	♊ 26 21 30	♊ 26 20 32	1 −
6	1590	Dec.	28	9 29	♑ 17 15 0	♊ 24 31 38	♊ 24 25 45	4 +
7	1591	Aug.	23	8 13	♍ 9 31 35	♓ 0 42 7	♓ 0 32 2	10 −
8	1591	Dec.	21	13 22	♑ 10 0 47	♌ 4 55 42	♌ 4 54 22	1 −
9	1592	Jal.	7	8 28	♉ 26 56 26	♌ 21 53 0	♌ 22 2 55	9 +
10	1594	Dec.	10	3 8	♐ 28 36 22	♈ 6 47 45	♈ 6 58 26	10 +
11	1594	Dec.	11	4 14	♐ 29 40 29	♈ 19 20 40	♈ 19 31 7	10 +
12	1594	Dec.	14	7 42	♑ 2 53 24	♉ 29 5 20	♉ 29 6 4	1 +
13	1594	Dec.	15	9 4	♑ 3 58 15	♊ 13 13 50	♊ 13 14 39	0 +
14	1594	Dec.	19	14 58	♑ 8 18 47	♌ 13 49 30	♌ 13 45 22	4 −
15	1594	Dec.	20	17 8	♑ 9 25 42	♌ 29 44 30	♌ 29 39 8	5 −
16	1594	Dec.	21	17 38	♑ 10 28 18	♍ 14 28 45	♍ 14 23 18	5 −
17	1594	Dec.	22	18 44	♑ 11 32 26	♍ 29 25 50	♍ 29 16 38	9 −
18	1594	Dec.	26	21 10	♑ 15 43 56	♏ 25 26 0	♏ 25 28 56	2 +

22. Anno Chriſti 1600, Auguſti die 7, veſperi, *Joannes Keplerus* conſpexit in confinibus *Stiriæ* & *Ungariæ*, ſub longitudine gr. 42, & latitudine gr. 47. 24′. *Lunam* ingredientem ſuper Cor ♏, eminente quaſi tertiâ parte τῆς τομῆς ſupra Stellam. Ingrediebatur verò *Luna* ſuper Cor ♏, hor. 8. 50′. Egrediebaturq; hor. 9. 40′. Hoc eſt horâ unâ ante occaſum Lunæ Tempus medium erat *Londini* hor. 7. 47′, & locus Solis verus tunc fuit in gr. 24 49′ 57″ ♌. Obſervatio Kepleriana.

LUNÆ	S. gr. ′ ″		S. gr. ′ ″
Medius motus	8 8 1 10	Anom. Correcta	1 1 41 15
Anomalia	1 4 40 26	Subt.	10 26 28
Proſthaphæreſis ſub.	2 44 45	Anomal. Synod.	0 21 14 47
Anomalia æquata	1 1 55 41	Log. Chordæ Evect.	223579
Locus ☽ æquatus	8 5 16 25	Log diſtantiæ ☽	362276
Locus Solis	4 24 49 57	Numerus Logarithm.	861303
Diſtantia ☽ à ☉.	3 10 26 28		gr. ′ ″
Duplicata diſtantia	6 20 52 56	Reflectio ſubt.	0 14 26
Reflectio Subt.	14 26	Evectio ſubt.	0 49 2
Anomalia correcta	1 1 41 15	Æquatio ſecund. ſubt.	1 3 28
Æquatio ſecunda Subt.	1 3 28	Lat. ☽ vera M. D.	3 43 50
Locus ☽ in Orbita	8 4 12 57	Altit. { M.C	19 23
Anomalia Latitudinis	10 14 57 2	Altit. { Lunæ	10 6 38
Reductio add.	7. 0	Altit. { 90 in orb. ☽	19 46 28
Locus ☽ in Ecliptica	♐ 4 19 57	Diſt. ☽ à Nonageſ.	45 19 2

 Hinc

Hinc dabitur Angulus Parallacticus gr. 72. 7′, 24″, Parallaxis Lunæ altitudinis 55′, 25″, longitudinis 17′, 0″, latitudinis 52′, 44″, ergo Centrum Lunæ conſpiciebatur in gr. 4. 2′, 57″ ♐, cum latitudine auſtrina gr. 4. 36′. 34″. At Cor ♏ erat in gr. 4. 12′, 22″ ♐, cum latitudine auſtrina gr. 4. 27′, differentia itaq; longitudinum erat 9′. 25″, & differentia latitudinum 9′. 34″, & proinde diſtantia Stellæ à Centro Lunæ 13′. 24″. Sed ſemidiameter Lunæ erat 15′. 29″, itaq; Luna ingrediebatur parte ſua boreali ſuper Cor ♏, eminebatq; pars tertia τῆς τομῆς ſupra Stellam. Omnino ut Doctiſſ. *Jo. Keplerus* conſpexit.

Obſervatio *P. Gaſſendi.* 23. Anno Chriſti 1627, die 7. Junii, horis à Meridie 10. 30′ *Diniæ*, ubi latitudo loci eſt gr. 44 6′, vidit *Petrus Gaſſendus* Lunam cœpiſſe obtegere Baſiliſcum à cornu inferiore non multò amplius quadrante.

Locus Solis verus tunc fuit in gr. 26. 9′. 50″ ♊.

LUNÆ	S.	gr.	′	″		S.	gr.	′	″
Medius motus.	4	17	54	11	Anomalia correct.	9	8	16	32
Apogæum	7	15	11	8	add.	1	3	19	21
Anomalia media	9	2	43	3	Anom. Synod.	10	11	35	53
Æquatio add.		4	56	18	Log. Chordæ Evect.				210503
Anomalia æquata	9	7	39	21	Log. diſtantiæ ☽				360902
Longit. ☽ æquata	4	22	50	29	Numerus Logarithm.				855601
Locus Solis	2	26	9	50			g.	′	″
Diſtantia ☽ à ☉	1	26	40	39	Reflectio add.		0	37	11
Duplicata diſtantia	3	23	21	18	Evectio add.		1	29	58
Reflectio add.			37	11	Æquat. 2. abſ. add.		2	7	9
Anomalia correcta	9	8	16	32	Latitudo ☽ vera		1	18	53
Æquatio ſecunda add.		2	7	9	Declinatio ☽		14	30	B.
Locus ☽ in Orbita	4	24	57	38	A. R. Solis		85	49	
Nodus Boreus	4	10	18	2	A. R. Lunæ		147	42	
Argumentum latitudinis	0	14	39	36	A. R. M. C.		243	19	
Reductio ſubt.			3	28	Angulus Merid.		79	40	
Locus ☽ verus	4	24	54	10	Altit. M. C. Diniæ		24	39	

Parallaxis altitudinis Lunæ erat 57′, 44″, & Angulus Parallacticus gr. 58. 56′; ergo dabitur Parallaxis longitudinis 29′, 48″, ad occaſum, & Parallaxis latitudinis 49′, 27″, in Auſtrum; itaq; Centrum Lunæ videbatur in gr. 24. 24′, 22″ ♌, cum latitudine borea gr. 0. 29′, 26″: Erat tunc Cor Leonis in gr. 24. 38′, 57″ ♌, cum latitudine borea gr. 0. 26′, 30″; differentia itaq; longitudinum Centri Lunæ & Stellæ erat 14′, 35″, & differentia latitudinum 2′, 56″; diſtabat igitur Stella à Centro Lunæ 14′, 53″. Semidiameter autem Lunæ erat 15′, 58″. Ergo *Luna* incipiebat obtegere *Baſiliſcum* à cornu inferiore, haud alitèr quam *Petrus Gaſſendus Diniæ* conſpexit.

Obſervatio *J. Bullialdi.* 24. Anno Chriſti 1634. Decembris die 20. veſperi, *J. Bullialdus* animadvertit *Julioduni* apud *Pictones* occultationem anguli Orientalis quadrilateri Pleiadum, quæ & lucida Pleiadum dicitur Lunæ interventu. Horâ vero 5. 42′, Lunæ margo obſcurus occupavit lucidam Pleiadum: Stella porrò Lunam ſubiit altior hujus limbo inferiore 4′ circitèr, ut Teleſcopio apparuit.

Locus verus Solis tunc temporis fuit in gr. 9. 13′, 53″ ♑.

LUNÆ

LUNÆ	S.	gr.	'	"		S.	gr.	'	"
Medius motus	1	20	15	34	Anom. adæquata	8	1	59	24
Anomalia media	7	28	22	40	ſubt.	1	15	18	54
Proſtaphæreſi add.		4	17	13	Anom. Synodica	6	16	40	30
Anomalia æquata	8	2	39	53	Log chordæ Evection.		209012		
Locus ☽ æquatus	1	24	32	47	Log. diſtantiæ ☽		359799		
Locus Solis	9	9	13	53	Numerus Logarithm.		849213		
Diſtantia ☽ à ☉	4	15	18	54			gr.	'	"
Duplicata diſtantia	9	0	37	48	Reflectio ſubt.		0	40	29
Reflectio ſubt.			40	29	Evectio add.		0	31	14
Anomalia adæquata	8	1	59	24	Æquatio 2. ſubt.		0	9	15
Æquatio 2. ſubt.			9	15	Lat. ☽ vera S. A.		4	49	37
Locus ☽ in Orbita	1	24	23	32	Angulus Meridian		66	35	
Nodus Boreus	11	14	31	26	Alt. M. C. Julioduni		44	24	
Argumentum latitudin.	2	9	52	6	Altitudo ☽		46	54	30
Reductio ſubt.			4	30	Altitud. 90 in orb. ☽		52	29	
Locus ☽ verus	1	24	19	2	Diſt. ☽ à Nonag.		26	12	

Ergò datur Angulus Parallacticus gr. 62. 48′, Parallaxis altitudinis ☽ 41′, 6″. Erat igitur Parallaxis longitudinis ☽ 18′, 47″ in conſequentia, & Parallaxis latitudinis 36′, 33″ in Auſtrum. Quamobrem ☽ centrum conſpiciebatur in gr. 24. 37′, 49″ ♉, cum latitudine borea, gr. 4. 13′, 4″. Sed lucida Pleiadum tunc tenuit gr. 24. 52′ 17″ ♉, cum latitudine borea gr. 4. 0′, differentia igitur longitudinum erat 14′, 28″, & differentia latitudinum 13′, 4″, & proinde diſtantia Stellæ à centro ☽ 19′, 30″. Semidiameter autem ☽ erat 16′, 23″, ita ut margo ☽ obſcurus videbatur occupare Lucidam Pleiadum, quemadmodum Doctiſſimus, Peritiſſimuſq; ille Aſtronomus *Iſmael Bullialdus* obſervavit.

25. Anno Chriſti 1638, die 14. Januarii, horis à meridie 8. 1′ ferè, *Petrus Gaſſendus* obſervavit *Diniæ* occultationem lucidæ Pleiadum in limbo ☽ obſcuro factam, ab apice cornu borei. Obſervatio P. *Gaſſendi*, An. 1638.

Locus verus Solis tunc fuit in gr. 5. 5′, 45″ ♒.

LUNÆ	S.	gr.	'	"		S.	gr.	'	"
Medius motus	2	1	59	17	Anom. correcta	4	0	36	11
Anomalia media	4	5	12	22	Subt.		22	46	15
Proſthaphæreſis ſub.		4	7	17	Anom. Synod.	3	7	49	56
Anomalia æquata	4	1	5	5	Log. chordæ Evect.		220780		
Locus ☽ æquatus,	1	27	52	0	Log. diſtantiæ ☽		359694		
Locus Solis	10	5	5	45	Numerus Logarithm.		861086		
Diſtantia ☽ à ☉	3	22	46	15			gr.	'	"
Duplicata diſtantia	7	15	32	30	Reflectio ſubt.		0	28	54
Reflectio ſubt.			28	54	Evectio ſubt.		2	19	41
Anomalia correcta	4	0	36	11	Æquat. abſol. ſubt.		2	48	35
Æquatio ſecunda ſubtr.		2	48	35	Vera ☽ latitudo		4	1	10
Locus ☽ in Orbita	1	25	3	25	Angulus Meridian.		81	17	0
Nodus Boreus	9	15	9	34	Altitud. M. C. Diniæ		67	50	0
Argumentum latit.	4	9	53	51	Altitudo ☽		65	12	22
Reductio add.			6	54	Altit. 90. in Orb. ☽		70	46	0
Locus ☽ verus	♉	25	10	19	Diſtant. ☽ à Nonag.		17	44	26

Hinc

Hinc dabitur Angulus Parallacticus gr. 51. 30′, 30″, Parallaxis altitudinis Lunæ 25′, 23″, longitudinis 15′, 48″ in occaſum, latitudinis 19′, 52″. Locus ergo ☽ viſus erat in gr. 24. 54′, 31″ ♉, & latitudo viſa gr. 3. 41′, 18″ borea; ſed fuit lucida Pleiadum in gr. 24. 54′, 52″ ejuſdem Signi, cum latitudine borea, gr. 4. 0′; erat itaq; differentia longitudinum 0′, 21″, & differentia latitudinum 18′, 42″, & proinde Stella diſtabat à centro Lunæ 18′, 43″; Semidiameter autem Lunæ erat 16′, 26″. Tangebat ergo ☽ apice cornu borei lucidam Pleiadum, vix aliter quam *Gaſſendus Diniæ* conſpexit.

Pars Pleiadum à Lunæ interpoſitione obtecta.

26. Anno Chriſti 1637. *Martii* die 19. hora 8. 19′ veſperi, D. *Bullialdus* animadvertit *Pariſiis* Lunam occultare angulum occiduum quadrilateri Pleiadum, quæ diſtat à lucida, ſeu ortivo angulo 33′. Ingreſſus Stellæ fuit in medio viæ Lunæ æqualitèr à cornuum apicibus.

Sol vero ſuo motu tunc tenuit gr. 9. 29′, 36″ ♈.

LUNÆ	S. gr. ′ ″		S. gr. ′ ″
Medius motus	1 26 7 1	Anom. correcta	5 1 13 3
Anomalia media	5 2 52 5	Add.	1 15 42 5
Æquatio ſub.	2 19 30	Anom. Synod	6 16 55 8
Anomalia æquata	5 0 32 35	Log. Chordæ Evect.	208714
Longit. ☽ æquata	1 23 47 31	Log. diſt. ☽ à centro	359049
Locus Solis	0 9 29 36	Numerus Logarithm.	849665
Diſtantia ☽ à ☉	1 14 17 55		gr. ′ ″
Duplicata diſtantia	2 28 35 50	Reflectio add.	0 40 28
Reflectio add.	40 28	Evectio add.	0 32 7
Anomalia correcta	5 1 13 3	Æquatio 2. add.	1 12 35
Æquat. 2. add.	1 12 35	Vera latitudo ☽ S. D.	4 34 12
Locus ☽ in Orbita	1 25 0 6	Med. Cœl. in Ecl.	11 0 ♌
Nodus Boreus	10 1 5 44	Alt. M. C.	58 41. 0
Anomalia latitudinis	2 23 54 22	Alt. Lunæ	22 41 32
Reductio add.	5 11	Alt. g. 90. in or. ☽	59 58 47
Locus ☽ in Ecliptica	♉ 25 5 17	Diſt. ☽ à Nonag.	66 26 51

Erat Angulus Parallacticus gr. 32, 42′, 0″, & Parallaxis altitudinis Lunæ 56′, 10″. ergo datur Parallaxis Longitudinis 48′, 0″, & Parallaxis latitudinis 30′, 20″; itaq; centrum ☽ conſpiciebatur in gr. 24. 17′, 17″ ♉, cum latitudine borea gr. 4. 11′, 33″. Sed angulus occiduus quadrilateri Pleiadum erat in gr. 24. 21′, 10″ ♉, cum latitudine borea gr. 4. 11′; differentia igitur longitudinum erat 3′, 53″, & differentia latitudinum 0′, 33″. Sed ☽ Semidiameter fuit 16′, 40″; itaq; ☽ obtexerat angulum occiduum quadrilateri Pleiadum. Vix alitèr quam D. *Bullialdus* obſervavit.

Oculus Tauri Boreus à Luna obtectus.

27. Anno Chriſti 1641. die 3. Aprilis, hor. 8. 8′, *Pariſiis, Iſmael Bullialdus* obſervavit *Lunam* occultare Oculum ♉ boreum. Subiit Stella Lunam, duobus quintis, vel potius $\frac{1}{2}$ Semicirculi obſcuri à cornu inferiore; nam erat latitudo Lunæ viſa minor latitudine Stellæ.

Verus Locus Solis tunc erat in gr. 24. 12′, 6″ ♈.

LUNÆ

LUNÆ	S.	gr.	′	″		S	gr.	′	″
Medius motus	2	4	20	13	Anom. correcta	11	27	35	37
Anomalia media	11	26	38	45	add.	1	19	35	1
Proſthaphæreſis add.			16	52	Anom. Synod.	1	17	10	38
Anomalia æquata	11	26	55	38	Log. chordæ Evect.				205484
Motus ☽ æquatus	2	4	37	5	Log. diſtantiæ ☽				362569
Locus Solis	0	24	12	6	Numerus Logarithm.				842915
Diſtantia ☽ à ☉	1	10	24	59			gr.	′	″
Duplicata diſtantia	2	20	49	58	Reflectio add.		0	39	59
Reflectio add.			39	59	Evectio ſubt.		1	6	32
Anomalia correcta	11	27	35	37	Æquat. ☽ 2. ſubt.		0	26	33
Æquatio ſecunda ſubtr.			26	33	Vera ☽ latitudo M.A.		1	58	11
Locus ☽ in Orbita	2	4	10	32	Angulus Meridian.		71	3	
Nodus Boreus	7	12	56	4	Alt. M.C.		55	22	
Anomalia latit.	6	21	14	28	Alt. Lunæ		19	36	43
Reductio ſub.			4	44	Alt. g.90.in orb. ☽		52	30	
Locus ☽ verus	♊	4	5	48	Diſtant. ☽ à Nonag.		65	16	

Angulus Parallacticus erat gr. 40. 16′, Parallaxis altitudinis ☽ 52′,49″. Parallaxis longitudinis 40′, 18″. Parallaxis latitudinis 34′, 8″ in Auſtrum. Ergo centrum ☽ videbatur in gr. 3. 25′.30″ ♊, cum latitudine auſtrina, gr. 2, 25′, 19″. Differentia igitur longitudinum centri Lunæ & Stellæ erat ſcr. 1′, 3″, & differentia latitudinum ſcrup. 11′, 18″; itaq; Stella diſtabat à centro ☽ 11′, 14″. Sed Semidiameter ☽ continebat 15′, 22″, ergo ☽ cum cornu auſtrino obtexerat oculum boreum ♉, haud aliter quam Doctiſſimus *Iſmael Bullialdus Pariſiis* obſervavit.

28. Anno Chriſti 1644, Decembris die 29. hor. 9, 10. veſperi, conſpeximus *Luſſenhamiæ*, *Palilicium* à boreali *Lunæ* parte fuiſſe obtectum. Palilicium à borea parte Lunæ obtectum.

Tempus medium erat *Londini* hor. 9. 18′, 22″, & tunc fuit verus Locus Solis in gr. 19. 9′, 18″ ♑

LUNÆ	S.	gr.	′	″		S.	gr.	′	″
Medius motus	2	4	5	36	Anom. correcta	6	25	37	34
Apogæum	7	9	53	7	ſubt.	1	17	1	48
Anomalia media	6	24	12	29	Anom. Synodica	5	8	35	46
Proſtaphæreſis add.		2	5	30	Log. chordæ Evection.				207658
Anomalia æquata	6	26	17	59	Log. diſt. ☽ à centro				359004
Locus ☽ æquatus	2	6	11	6	Numerus Logarithm.				848654
Verus Locus Solis	9	19	9	18			gr.	′	″
Diſtantia ☽ à ☉	4	17	1	48	Reflectio ſubt.		0	40	25
Duplicata diſtantia	9	4	3	36	Evectio ſubt.		0	39	11
Reflectio ſubt.			40	25	Æquatio ☽ 2. ſubt.		1	19	36
Anomalia correcta	6	25	37	34	Vera ☽ Lat.		5	7	8
Æquatio 2. ſubt.		1	19	36	Med. Cœl. in eclipt.		9	54	♊
Locus ☽ in Orbita	2	4	51	30	Angulus Meridian		81	29	0
Nodus Boreus	5	0	35	41	Alt. M.C. *Luſſenham.*		59	21	0
Anomalia latitudin.	9	4	15	49	Altitudo ☽		53	20	18
Reductio add.			1	2	Altitud. 90 in orb. ☽		54	54	0
Locus ☽ verus	♊	4	52	32	Horizontalis Paral. ☽			60	32

Ex

Ex præmiſſis emergit Angulus Parallacticus gr. 74. 13', & Parallaxis altitudinis Lunæ 36', 40"; itaq; dabitur Parallaxis longitudinis 9', 58" in Occaſum, & Parallaxis latitudinis 35', 17", in Auſtrum; quare Lunæ Centrum conſpiciebatur in gr. 4. 42', 34" ♊, cum latitudine auſtrina gr. 5. 42'. 25". Palilicium verò erat in gr. 4. 49', 12" ♊, cum latitudine auſtrina gr. 5. 31', differentia igitur longitudinum erat 6'. 38", differentia latitudinum 11'. 25", & proinde Stella diſtabat à Centro Lunæ 13'. 13". Semidiameter autem Lunæ continebat 16', 41", cooperuerat igitur ☽ *Palilicium*, ut conſpici non poſſet, omnibus modis ut *Lyſſenbamiæ* obſervavimus.

Altera Obſervatio à nobis facta.

29. Anno Chriſti 1661, die 3. Maii, hor. 11. veſperi, videmus *Lyſſenbamiæ*, Stellam Saturni à boreali & ſupremo Lunæ margine fuiſſe obtectam, ita ut aliquo exiguo temporis ſpatio à nobis (oculo nudo) non conſpiceretur.

Verus locus Solis (reſpectu Terræ) erat tunc temporis in gr. 23. 29'. 44" ♉, & Logarithmus diſtantiæ 500558.

Calculus loci Saturni.

SATURNI	S.	gr.	'	"	
Medius motus.	7	16	38	12	
Aphelium	8	27	30	44	Logarithmus ♄ 599826
Anomalia media	10	19	7	28	Reduct. 1', 26" ad. curtat. 31
Proſthaphæreſis add		4	5	48	Scrup. proport 52', 10".
Locus Heliocentricus	7	20	44	0	Logarithmi ☉ 500558
Nodus Boreus	3	21	8	52	Logarithmi ♄ 599795
Anomalia Latitudinis	3	29	35	8	Num. Logarithm. 900763 Hinc reperitur Paral. Orb. annui
Reductio add.			1	26	in Saturno gr. 0. 18', 10". ſubtr.
Locus reductus	7	20	45	26	
Locus verus Solis	1	23	29	44	Maxima ♄ latitudo Geocentric.
Anomalia Orbis	6	2	44	18	gr. 2. 47'. dabitur itaq; vera lat
Parallaxis Orbis ſub.		0	18	10	♄ Geocent. gr. 2. 25', 12" bor.
Verus Locus ♄	♏	20	27	16	

Calculus Loci Lunæ.

LUNÆ	S.	gr.	'	"		S.	gr.	'	"
Medius motus	7	24	49	50	Anom. Correcta	2	5	14	49
Apogæum	5	14	54	24	Subt.	2	26	44	5
Anomalia media	2	9	55	26	Anomal. Synod.	11	8	30	44
Proſthaphæreſis ſub.		4	36	1	Log. Chordæ Evect.				099860
Anomalia æquata	2	5	19	25	Log. diſtantiæ				361442
Locus ☽ æquatus	7	20	13	49	Numerus Logarithm.				738418
Locus Solis	1	23	29	44			gr.	'	"
Diſtantia ☽ à ☉.	5	26	44	5	Reflectio ſubt.		0	4	36
Duplicata diſtantia	11	23	28	10	Evectio add.		0	3	8
Reflectio Subt.			4	36	Æquatio ſecund. ſubt.		0	1	28
Anomalia correcta	2	5	14	49	Lat. ☽ vera S. A.		2	54	57
Æquatio ſecunda Subt.			1	28	Declinatio ☽		15	0	0
Locus ☽ in Orbita	7	20	12	21	Aſcenſio rect.		228	27	0
Nodus Boreus	6	14	30	8	Paral. ☽ Horizon.			57	13
Anomalia Latitudinis	1	5	42	13	Altitudo ☽		21	29	37
Reductio ſubt.			6	39	Paral. ☽ in circ. alt.			53	34
Locus ☽ verus	♏	20	5	42					

Datur etiam ad hoc tempus.

Aſcenſio Recta Medii Cœli gr. 216, 5′, Medium Cœli in Ecliptica gr. 8. 28′ ♏, angulus meridianus, gr. 71. 10′. angulus Eclipticæ & Horizontis, gr. 29. 22′, Gradus Nonageſimus, gr. 1. 9′ ≏, altitudo Orbitæ ☽ in Nonageſimo gr. 2[illegible] 12′, Diſtantia ☽ à Nonageſimo, gr. 48, 57′; Altitudo ☽ gr. 21, 29′, 37″. Hinc dabitur angulus Parallacticus, gr. 17, 41′, Parallaxis longitudinis 17′, 44″ in Ortum, Parallaxis latitudinis 50′, 33″ in Auſtrum, ac proinde Centrum ☽ conſpiciebatur in gr. 20, 23′, 26″ ♏, cum latitudine gr. 2. 4′, 24″; ſed Saturnus tunc tenebat gr. 20, 27′, 16″ ♏, cum latitudine gr. 2, 25′, 12″. Differentia itaq; longitudinum fuit 3′, 50″, & differentia latitudinum 20′, 48″; quare diſtantia Saturni à centro ☽ erat 21′, 8″. Sed quoniam Refractio attollebat Lunam circiter 5′, (ut vult *T. Brahæus*) diſtantia Centrorum non ultra Lunæ Semidiametrum ſe extendit, ac propterea borealis Lunæ limbus tetigit Saturnum, ut evincit noſter calculus; ſed procuidubio erat ☽ Refractio aliquot ſcrupulis major (nempe 2′ vel 3′) *Refractione Tychonicâ*, ut poſtea declarabimus in Sect. 7, & 8, ſequentibus.

30. Anno Chriſti 1663. die 5. Februarii, hor. 5. 54′ *Luffenhamiæ*, conſpeximus illuſtrem Conjunctionem ſuperioris cornu *Lunæ* cum *Aldebaran*, quando ☽ non procul fuit à Quadratura. Stella à nobis viſa eſt ſuperare cornu Lunæ Scrup. 3′.

Tertia obſerv. ab authore facta an. 1663.

Tempus medium erat Londini hor. 5. 56′, quo tempore verus locus Solis fuit in gr. 27. 14′, 39″ ♒.

LUNÆ	S.	gr.	′	″		S.	gr.	′	″
Medius motus	2	4	33	44	Anom. correcta	6	8	34	9
Apogæum	7	26	31	18	Sub.		8	2	1
Anomalia media	6	8	2	26	Anom. Synod	6	0	32	8
Æquatio add.			42	56	Log. Chordæ Evect.	223876			
Anomalia æquata	6	8	45	22	Log. diſt. ☽ à centro	358837			
Locus ☽ æquatus	2	5	16	40	Numerus Logarithm.	865039			
Locus Solis	10	27	14.	39			gr.	′	″
Diſtantia ☽ à ☉	3	8	2	1	Reflectio ſubt.		0	11	13
Duplicata diſtantia	6	16	4	2	Evectio add.		0	1	30
Reflectio ſub.			11	13	Æquatio ☽ 2. ſub.		0	9	43
Anomalia correcta	6	8	34	9	Lat. ☽ vera M. A.		5	15	16
Æquat. 2. ſubt.			9	43	Med. Cœl. in Ecl.		28	0	♉
Locus ☽ in Orbita	2	5	6	57	Angulus Merid.		77	0	0
Nodus Boreus	5	10	27	45	Ang. M.C. Luffenh.		57	7	0
Anomalia latitudinis	8	24	39	12	Alt. 90. in orb. ☽		53	5	0
Reductio ſubt.			1	17	Diſt. ☽ à Nonag.		1	10	0
Locus ☽ in Ecliptica	♊	5	5	40	Horizont. Paral. ☽		1	0	45

Ergo Parallaxis Lunæ in longitudinem fuit 1′, 0″ ſubtrahenda, & in latitudinem 36′, 29″ addenda, itaq; Centrum Lunæ videbatur in gr. 5. 4′, 40″ ♊, cum latitudine auſtrina, gr. 5, 51′, 45″, Semidiameter ☽ erat 16′, 44″. Ergo latitudo cornu borei Lunæ gr. 5. 35′, 1″ auſtrina. Stella autem erat in gr. 5. 4′, 27″ ♊, cum latit. gr. 5. 31′; diſtabat itaq; Aldeboran à boreo cornu Lunæ 4′, 1″, prout nos obſervavimus *Luffenhamiæ*.

§. IV.

Collatio locorum Planetarum obſervatorum, cum Tabulis noſtris Aſtronomicis.

OBSERVATIONES Verorum Motuum quinque Planetarum ♄, ♃, ♂, ♀, ☿, ſecundum Longitudinem & Latitudinem; & primum SATURNI.

Obſervatio Saturni antiquiſſima, per veteres *Aſſyrios* habita, anno ante natum Chriſt. 229. prim. die Martii.

1. PRimùm accipiemus Conſiderationem antiquiſſimam per Veteres *Aſſyrios*, vel *Ægyptios* factam, anno *NABONASSARI* 519. Menſis Tibi apud *Ægyptios* 14, Hor. 6. veſperi; quo tempore obſervatus eſt *SATURNI* Congreſſus cum Stella ſequente ſub auſtrali humero *Virginis*, à quà duobus digitis, ille erat auſtralior. Et quandoquidem firmata fuit hæc animadverſio ſecundum verificationem, & in ea non eſt dubitatio, ut refert *Ptol. Lib.* 11. *Cap.* 7. *Operis Magni*; itaq; calculum illius, ex Tabulis noſtris ſubjiciemus.

SOLIS.	S.	gr.	'	"	
Medius motus Solis	11	5	49	13	
Apogæum	2	4	25	. 0	Log. ☉ 500036
Anomalia media	9	1	24	13	
Proſthaphæreſis add.		2	2	45	
Verus locus Solis	♓	7	51	58	

SATURNI	S.	gr.	'	"	
Medius motus ♄	5	2	42	22	Logarithmus 598785
Aphelium	7	15	22	26	Red. 1', 14" ſubt. Curtat. 35
Anomalia media	9	17	19	56	Scrup. proport. 55', 6".
Proſthaphæreſis add.		6	9	5	Logarith- ☉ 500036
Locus ♄ à ☉ in Ellipſi	5	8	51	27	mi ♄ 598750
Nodus Boreus	3	2	10	35	Numerus Logarithm. 901286
Argumentum latitudinis	2	6	40	52	
Reductio ſubt.			1	14	Cum Anom. Orb. ſub columnella Numeri Logarithm. colligitur
Locus Heliocentricus	5	8	50	13	(ex tab.) Paral. Orb. annui in ♄
Locus verus Solis	11	7	51	58	gr. 0. 6', 48" addenda.
Anomalia Orbis	5	29	1	45	
Parallaxis add.		0	6	48	Maxima lat. ♄ Geoc g. 2. 47' 0"
Locus Geocetricus	♍	8	57	1	Lat. quæſita Borea. g. 2. 33. 37

Locus fixæ ſub auſtrali humero *Virginis* tunc tenebat gr. 8. 56', 57" ♍, cum latitudine borea, gr. 2. 50', differentia igitur longitudinum eſt 0', 6", & differentia latitudinum 16', 23"; ideoq; conjunctus fuit ♄ cum fixa ſecundum longitudinem à qua erat etiam auſtralior duobus digitis, nam per contractionem viſûs, quadrans unius gradûs ultra duos digitos rarò ſe extendit, ut certum eſt in omnibus iſtiuſmodi Obſervationibus.

Obſervatio *B. Waltheri Norimbergæ* habita, an. 1481.

2. Anno Chriſti 1481. die 22, Octobris, ante exortum Solis, ferè ad unam horam, *BERNARDUS WALTHERUS Norimbergæ* obſervavit *Saturnum* & *Mercurium* diſtantes inter ſe non ultra Diametrum Lunæ ex parte longitudinis, latitudinem vero utriuſq; eandem fuiſſe. Erat dies 21 Octobris, hor. 17. 23. *Londini.*

Locus Solis tunc fuit in gr. 7. 51'. 56" ♏, ejuſq; Logarithmus 499555.
Locus ☿ in gr. 19. 1', 17" ♎, cum latitudine borea, gr. 2. 12' 51."

SATURNI

SATURNI	S. gr. ′ ″
Medius motus ♄	6 10 4 59
Aphelium	8 23 30 28
Anomalia media	9 16 34 31
Proſthaphæreſis add.	6 10 52
Locus ♄ à ☉ in Eclipti.	6 16 15 51
Nodus Boreus	3 19 20 42
Argumentum latit.	2 26 55 9
Reductio Subtr.	0 11
Locus Heliocentricus	6 16 15 40
Locus Solis	7 7 51 56
Anomalia Orbis	0 21 36 16
Parallaxis add.	1 57 42
Locus Geocentricus	♎ 18 13 22

Logarithmus ♄ 598755
Reductio 0′.11″ ſubtr. curt. 41
Scrup. proport. 55′, 56″.

Logarith- { ☉ 499555
mi { ♄ 558714

Numerus Logar. 900841
Ergo,
Dabitur Paral. Orbis annui in Saturno gr. 1, 57′ 42″ add.

Lat. max. (ex Anom Orbis & Num. Log) colligitur gr. 2. 17′.
Ergo L. ♄ quæſ. erit g 2. 16′, 51″

Erat ☿ in gr. 19. 1′, 17″ ♎, cum latitudine borea gr. 2. 12′, 51″, Latitudo igitur utriuſq; eadem proximè fuerat, attamen diſtabant inter ſe ex parte longitudinis 47′ 55″, quæ Diametro Lunæ majores ſunt nonnihil, ſed nudo oculo facta eſt Obſervatio; & certum eſt, quod diſtantiæ Stellarum apparentes in tanta vicinitate ſemper minores videntur, quàm revera ſint ob radiorum explicationes, ut in omnibus Obſervationibus hujuſcemodi experiuntur, quemadmodum Doctiſs. *Bullialdus*, qui nunquam ſatis laudabitur, annotat.

ALIARUM OBSERVATIONUM HUJUS PLANETÆ Synopſis; in qua ejus loca tum ſecundum Longitudinem, tum Latitudinem, juxta Tabulas noſtras repræſentantur. Tempore ad Meridianum LONDINI reducto.

Obſervat. 12. à D. *Tychone* & alus factæ.

Temp. Datum Londini. Nu.	An.	Menſ.	Dies	Ho.	′	Loc. Sol. ex Tabulis. S. gr. ′ ″	Lon. ♄ obſerv. S. gr. ′	Lat ♄ obſerv. Gr ′	Locus ♄ ex Tabulis S. gr. ′ ″	Lat. ♄ ex tab. Gr ′ ″	Diff. Long. ′ ″	Diff. Latit. ′ ″
1	1587	Jan.	9	8	53	♐ 29 26 7	♈ 26 8	2 28 M	♈ 26 8 0	2 26 50	0 0	1 − 10
2	1590	Feb.	8	7	8	♓ 0 2 19	♊ 7 32	1 30 M	♊ 7 34 22	1 31 39	2 + 22	1 + 39
3	1590	Sept.	7	11	8	♍ 24 29 39	♊ 28 6	1 11 M	♊ 28 9 32	1 11 57	3 + 32	0 + 57
4	1591	Dec.	9	11	58	♐ 27 41 0	♋ 10 21	0 33 M	♋ 10 20 14	0 33 37	0 − 4	0 + 27
5	1591	Mart.	17	6	38	♈ 6 37 40	♊ 22 43	0 56 M	♊ 22 44 2	0 54 0	1 + 2	1 − 54
6	1594	Dec.	10	6	58	♐ 28 46 9	♌ 24 30	1 18 B	♌ 24 28 9	1 17 54	1 − 51	0 − 6
7	1595	Nov.	25	16	8	♐ 13 25 55	♍ 7 55	1 42 B	♍ 7 56 38	1 41 14	1 + 38	0 − 46
8	1596	Mai.	5	8	8	♉ 25 2 45	♍ 1 25	Non obſ.	♍ 1 21 43	1 52 9	3 − 17	0 0
9	1600	Jan.	25	15	38	♒ 15 49 22	♎ 28 31	2 37 B	♎ 28 32 50	2 35 25	1 + 50	1 − 35
10	1600	Feb.	11	15	8	♓ 2 57 40	♎ 28 19	2 43 B	♎ 28 20 39	2 40 20	1 + 39	2 − 40
11	1639	Nov.	4	7	8	♏ 22 11 58	♒ 12 38	Non obſ	♒ 12 39 53	1 8 27	1 + 53	0 0
12	1640	Oct.	2	8	8	♎ 19 53 50	♒ 23 57	Non obſ	♒ 23 59 29	1 38 18	2 + 29	0 0

15. Anno Chriſti 1628. die 23. Junii, circa mediam noctem *Saturnus* viſus eſt *Gandavi Flandriæ*, conjunctus Stellæ ſub auſtrali Virginis humero, quoad longitudinem, ſed auſtralior eſſe ſcrupulis circiter 25′. ut obſervavit *Martinus Hortenſius*. Vide Obſervat. *Aſtron. Theſaurum Ph. Lansbergi*, fol. 162.

Obſervatio *Martini Hortenſii*, anno 1628.

Verus locus Solis tunc erat in gr. 12. 11,′ 4″ ♋, Logarithmus 500769.

SATURNI	S.	gr.	′	″
Medius motus ♄	6	4	36	2
Aphelium	8	26	46	45
Anomalia ſimplex	9	7	49	17
Proſthaphæreſis add		6	27	7
Locus Heliocentricus	6	11	3	9
Nodus Boreus	3	20	49	4
Argument. Latitudinis	2	20	14	5
Reductio ſub			0	34
Locus ♄ reductus	6	41	2	35
Locus verus Solis	3	12	11	4
Anomalia Orbis	9	1	8	29
Parallaxis ſub.		6	1	9
Locus ♄ Geocentricus	♎	5	1	26

Logarithmus . 598398
Reduct. 0′, 34″ ſub. curtat. 40
Scrup. proport 59′, 8″.
Logarith- ☉ 500764
mi ♄ 598358
Num. Logarithm. 902411
Cum Anom. Orb. & Num. Log. ingredior Tab. Parallaxeos orb. annui, & invenio Par. gr. 6. 1′ 9″. Subt. Lat. maxima gr. 2. 29″. Ut 60′ ad lat. max. gr. 2. 29′, ita ſcr. prop. 59′, 8″ ad lat. ♄ veram, gr. 2. 26′, 51″. boream.

Locus fixæ erat in gr. 4. 58′, 19″ ♎, & latitudo gr. 2, 50′ borea, differentia igitur longitudinum eſt 3′, 7″, & differentia latitudinum 23′, 9″, ergo tenuit *Saturnus* eandem proximè longitudinem cum fixa, & latitudinem 25′ fere minorem, quemadmodum rectè obſervavit Doctiſſimus Vir *Martinus Hortenſius*.

Obſervatio D. *Bullialdi Pariſiis* facta, anno 1640.

16. Anno Chriſti 1640, die 12. Octobris, horis 8, cum ſcrupulis aliquot, viſus à Doctiſs. *Bullialdo Pariſiis*, *Saturnus* in Meridiano diſtare à Stella iv. magnitudinis, quæ pertinet ad clunes Aquarii 26′, quantum inter latera, boreum & auſtrinum quadranguli Pleiadum intercipitur, erant in eodem verticali, fixa eſt in gr. 23, 46′, 9″, cum latitudine auſtrina. gr 2. 0′, Saturnus erat Stella borealior. Ex angulo itaq; Meridiani cum Zodiaco, & diſtantia Saturni à Stella, habetur locus Planetæ in gr. 23. 56′ ♒, & latitudo auſtrina, gr. 1. 36′, 40″. Tubo optico facta Obſervatio.

Fuit tunc temporis verus locis Solis in gr. 19. 53′, 35″ ♎. Logarithmus 499809.

SATURNI	S.	gr.	′	″
Medius motus ♄	11	4	47	56
Aphelium	8	27	3	12
Anomalia media	2	7	44	44
Proſthaphæreſis ſub.		5	55	57
Locus Heliocentricus	10	28	51	59
Nodus Boreus	3	20	56	28
Anomalia Latitudinis	7	7	55	31
Reductio ſubt.			1	38
Locus ♄ à ☉ in Ecliptica	10	28	50	21
Verus Locus ☉	6	19	53	35
Anomalia Orbis	7	21	3	14
Parallaxis ſubt.		4	51	0
Locus Geocentricus	♒	23	59	21

Logarithmus 598975
Red 1′. 38″. ſubt. Curt: 15
Scrup. proport 36′. 53″.
Logarith- ☉ 499809
mi ♄ 598960
Numerus Logarithm. 900849
Ergo ex tab. dabitur Paral. orb. annui in ♄, gr. 4. 51′, 0″, ſubt.
Lat. ♄ maxima Geoc. gr. 2. 40′.
Hinc datur
Lat. ♄ gr. 1. 38′ 21 auſtrina.

Differentia igitur longitudinis eſt 3′, 21″, differentia latitudinis 1′, 41″. *Keplerus* vero habet ♄ in gr. 24, 5′ ♒, excedens Cœlum 9′.

17. Anno

17. Anno Chriſti 1657, die Januarii 1. Hor. 6. A. M. vidimus *Saturnum* in gr. 5. 50′ ♎, nam eodem tempore obſervavimus ♄ à Stella, quæ eſt vii. Aſteriſmi ♍, & ſecunda quatuor in ala ſiniſtra Virginis, deſceſſiſſe penes longitudinem 27′ circitèr; erat fixa tunc temporis in gr. 5. 22′, 18″ ♎, fuit itaq; Saturnus in gr. 5. 49′, vel 50′ ♎. Obſervatio ♄ à nobis habita anno 1657.

Erat verus locus Solis in gr. 21, 39′, 9″ ♑, Logarithmus 499246.

SATURNI	S	gr.	′	″	
Medius motus ♄	5	23	35	12	Logarithmus 597898
Aphelium	8	27	24	55	Reductio 1′, 8″ ſub. curt. 36
Anomalia media	8	26	10	17	Scrup. proport. 56′. 2″.
Proſthaphæreſis add.		6	35	18	Logarith- { ⊙ 499246
Locus Heliocentricus	6	0	10	30	mi { ♄ 597862
Nodus Boreus	3	21	6	15	Numerus Logarithmic 901384
Anomalia Latitudinis	2	9	4	15	Ergo dabitur Paral. Orb annui
Reductio ſubt.			1	8	in ♄, gr. 5. 42′, 4″. add.
Locus ♄ à ⊙ in Elipſi	6	0	9	22	
Verus Locus Solis	0	21	29	9	Maxima ♄ lat. Geoc. g. 2 35′.
Anomalia Orbis	3	21	29	47	Ut 60′, ad g. 2, 35′, ita 56′ 2″
Parallaxis add.		5	42	4	ad veram lat ♄ bor. g. 2. 25′.
Locus Geocentricus	♎	5	51	26	

Datur ergo ex Tabulis noſtris locus ♄ verus in gr. 5. 51′. 26″ ♎, qui ab Obſervatione vix diſſentit.

§. V.

Obſervationes Stellæ Jovis.

1. ANno 45. *Dionyſiano* die 10. *Virguinionis*, ſed à morte *Alexandri* 83, die 18. Menſis, qui ab *Egyptiis Παῦνι* vocabatur, manè, viſa eſt Jovis Stella matutina occultare *Aſellum Auſtrinum*, Ptol. lib. 11. cap. 2. Aſellus Auſtrinus à Stella Jovis matutina obtectus, anno *Alexand.* 83.

Hoc eſt Anno *Alexandri* 83, die 17 *Epiphi*, hor. 14. 13′. ſub *Meridiano Londinenſi*. In Sexagenis vero, 8″, 24′, 7° 35′, 32″, 30‴, quibus congruunt hi motus.

Verus locus Solis gr. 7. 26′, 55″ ♍. Logarithmus 499946.

Longitudo vera Aſelli Auſtrini in gr. 7. 19′, 47″ ♋. Latitudo gr. 0, 4′ Auſtrina.

JOVIS

JOVIS	S.	gr.	′	″	
Medius motus ♃	2	22	59	19	Logarithmus 572733
Aphelium	4	26	37	14	Redoct. 0′. 2″ add. curr. 0
Anomalia media	9	26	22	5	Scrup. proport. 2′, 37″.
Proſtaphæreſis add.		4	47	35	Logarith-mi { ☉ 499946
Locus ♃ à ☉ in Ellipſi	2	27	46	54	{ ♃ 572723
Nodus Boreus	3	0	17	9	Numerus Logarithm. 927223
Anomalia latitudin.	11	27	29	45	Ergo data eſt Paral. orb. annui
Reductio add.			0	2	in ♃, gr. 9. 21′. 0″ addenda.
Locus Heliocentricus	2	27	46	56	
Locus ☉	5	7	26	55	Lat. maxima, gr. 1. 15′, 13″
Anomalia Orbis	2	9	39	59	Ergo vera ♃ lat. Geocent. erat
Parallaxis add.		9	21	0	gr. 0. 3′, 17″ auſtrina.
Locus Geocentricus	♋	7	7	56	

Diſtabant igitur Planeta & fixa in longitudine 11′. 51″, in latitudine 0′, 43″; ergo videtur ♃ illam Stellam occultare non corpore, ſed radiis ejus diffuſis in tantula diſtantia, ita ut ſupponenda eſt Conjunctio, eum adhuc inſtaret, & hoc magis eluceſcerit, eum conſideremus Conjunctionem ♃ & *Cordis* ♌, quam proximo in loco inſeremus.

no Chriſti 8. die 27 pt. mane, ı eſt ſtella corde ♌ ſi tribus itis Bore- verſus.

2. Doctiſſimus & ingenioſiſſimus Vir *Iſmael Bullialdus*, nunquam ſufficientèr laudatus, in libro 7. Aſtronomiæ Philolaicæ, memorat antiquiſſimam Obſervationem Stellæ ♃, & Cordis ♌, quam invenit in lib. M. S. *Bibliothecæ Regis Chriſtianiſſimi*, quæ facta fuit anno *Diocletiani* 225. Thoth die 30, quando Stella ♃ viſa eſt ita proxima cordi ♌, ut ab ipſo tribus digitis Boream verſus diſtiterit, & tunc ab illa fixa minimum diſtare apparuit. Erat annus Chriſti 508. Septemb. die 27, manè, Aſtronomicè vero Sept. 26. hor. 14. 6′. reſpectu *Meridiani Londinenſis*, cui debentur hi motus.

Verus locus Solis fuit tunc temporis in gr. 5. 48′, 50″ ♎. Logar. 499741.

JOVIS	S.	gr.	′	″	
Medius motus ♃	3	26	23	51	Logarithmus 573180
Aphelium	5	13	20	23	Red. 0′. 24″. ſubt. curt. 2
Anomalia media	10	13	3	28	Scrup. proport. 27′. 29″.
Proſthaphæreſis add.		3	51	43	Logarith-mi { ☉ 499741
Locus ♃ à ☉ in Ellipſi.	4	0	15	34	{ ♃ 573178
Nodus Boreus	3	2	51	17	Numerus Logarithm. 926563
Anomalia latit.	0	27	16	17	Erit igitur Parallaxis orb. annui
Reductio ſub.			0	24	in ♃ gr. 8. 51′. 33″ addenda.
Locus Heliocentricus	4	0	15	10	
Locus Solis	6	5	48	50	Lat. ♃ maxima g. 1. 15′. de qua
Anomalia Orbis	2	5	33	40	ſumo part. proport. ſcrup. proport. 27′. 29″ congruentem, &
Parallaxis add.		8	51	33	naſcetur ♃ latitudo gr. 0. 34′.
Locus Geocentricus	♌	9	6	43	21″ borea.

Longitudo Cordis ♌ tunc fuit in gr. 8. 58′ ♌, cum latitudine borea 26′. 30″, ita ut differentia longitudinum eſſet 8′. 43″, & differentia latitudinum 7′. 51″; ac proinde ♃ diſtabat à Stella quaſi digitis tribus Boream verſus, omnibus modis, ut refert Obſervator.

3. Inter

3. Inter Obſervationes B. *Waltheri Norimbergenſis* reperitur hæc ſubſequens Obſervatio facta anno 1488, Octobris die 8, qua ita ſe habet; *Dum medium Cæli fuerat gr.* 8. ♑, viz. *in Occaſu Solis; habuit Sol gr.* 23. 31′ ♎. *Luna gr.* 9 ♐. *Item Medio Cæli exiſtente gr.* 13. ♑, ♃ *ut prius in* ♓ *gr.* 13. 20′, *Latitudo ejus Meridiana, gr.* 1. *Item informata* ♈ *in principio* ♉, *habuit Latitudinem Septentrionalem, gr.* 10. 10′. *Aldebaran gr.* 1 40′ ♊, *cum Latitudine Meridiana, gr.* 5. 0′. Obſervatio loci Jovis à B. *Walthero* facta, anno 1488.

Jupiter itaq; præceſſit Oculum ♉, S. 2. gr. 18, 20′, & ſequebatur *Solem*, S. 4. gr. 19, 49′, & quia ☉ vero ſuo motu juxta Tabulas noſtras erat in g. 24. 34′, 52″ ♎, ſequitur, ut locus ♃ (reſpectu loci Solis) deberet incidere in gr. 14. 24′ ♓, cum quo ejus diſtantia ab oculo ♉ intra 6′ etiam convenit.

Verus Solis locus fuit tunc temporis in gr. 24. 34′, 52″ ♎, ejus Logarithmus 499715.

Calculus loci Jovis.

JOVIS.	Sig.	gr.	′	″	
Medius motus ♃	11	23	3	56	Logarithmus 569658
Aphelium	6	5	14	37	Reduct. 0′, 15″ ſub. Curt. 11
Anomalia media	5	17	49	19	Scrup. proport. 58′, 2″.
Proſthaphæreſis ſubt.		1	13	18	Logarithmi ☉ 499715
Locus ♃ à ☉ in Ellipſi	11	21	50	38	Logarithmi ♃ 569647
Nodus Boreus	3	6	31	40	Numerus Logarithmic. 930068
Anomalia Latitudinis	8	15	18	58	Ex numero Logar. & orb. anom.
Reductio ſubt.			0	15	reperitur Paral. Orb. annui in
Locus Heliocentricus	11	21	50	23	♃, gr. 7. 23′, 58″, ſubt.
Verus locus Solis	6	24	34	52	Max. ♃ lat. Geocent. gr. 1. 37′,
Anomalia Orbis	7	2	44	29	10″.
Parallaxis ſubt.		7	23	58	Lat. ♃ quæſ. gr. 1. 34′, 3″, au-
Locus Geocentricus	♓	14	26	25	ſtrina.

Vix aliter quam *Bernhardus Waltherus* obſervavit *Norimbergæ*.

Collatio

Collatio Locorum JOVIS Obſervatorum cum Tabulis noſtris Britannicis.

Obſervationes veri loci ſtellæ ♃ ſexdecim.

Nu.	An.	Menſ.	Dies	Ho.	Loc. ♃ obſerv. S. gr. ′	Lat ♃ obſerv. Gr ′	Locus ♃ ex Tabulis S. gr. ′ ″	Lat. ♃ ex tab. Gr ′ ″	Diff. Long ′ ″	Diff. Latit. ′ ′
1	1587	Jan.	14	7 8	♋ 7 19	0 8 1	♋ 7 17 29	0 9 7	1−31	1+7
2	1589	Jan.	29	12 21	♍ 15 43 1/6	1 28 1/4 B	♍ 15 45 22	1 28 22	2+14	0+13
3	1590	Jan.	24	15 34	♎ 17 46	1 28 1/5 B	♎ 17 50 1	1 30 0	4+1	1+53
4	1591	Jan.	29	16 0	♏ 17 9 1/3	1 12 B	♏ 17 10 13	1 12 24	0+4	0+24
5	1591	Apr.	14	10 8	♏ 14 16	1 23 1/3 B	♏ 14 20 55	1 21 21	4+55	2−7
6	1593	Sep.	28	7 8	♑ 13 56	0 25 M	♑ 13 58 3	0 26 0	2+32	1+0
7	1597	Sept.	13	14 10	♊ 16 9	0 45 M	♊ 16 5 39	0 40 8	3−21	1+8
8	1598	Dec.	28	11 0	♋ 14 40	0 13 B	♋ 14 29 50	0 14 24	0−10	1+24
9	1600	Mart.	5	9 8	♌ 12 33 1/3	1 6 1/4 B	♌ 12 35 28	1 4 44	2+8	2−0
10	1623	Oct.	2	17 0	♌ 24 40	0 36 B	♌ 24 42 28	0 47 0	2+38	11+0
11	1634	Apr.	2	8 22	♊ 25 53	0 4 M	♊ 25 52 2	0 1 40	0−58	2−20
12	1634	Nov.	24	10 0	♌ 3 36	0 14 B	♌ 3 32 51	0 29 18	3−9	15+18
13	1637	Jul.	6	9 0	♍ 29 36	1 18 0	♍ 29 32 3	1 16 57	3−57	1−3
14	1639	Aug.	21	7 52	♏ 28 10	0 41 B	♏ 28 13 58	0 37 49	3+58	3−11
15	1653	Aug.	21	10 40	♒ 8 57	0 59 M	♒ 8 57 12	1 0 15	0+12	1+15
16	1653	Oct.	23	8 50	♒ 8 55	0 57 M	♒ 8 52 27	0 56 40	3−33	0−20

An. 1627. Stella ſuprema, quæ eſt in fronte ♏ occultata fermè fuit à ♃.

20. Anno Chriſti 1627, die 25 Aprilis, Pater meus *Vincentius Wing, Luffenhamiæ*, obſervavit *Jovem*, ſupremam in fronte ♏ obtexiſſe. *Lansbergius* vero ex Obſervatione *Hortenſii*, colligit quòd ♃ eodem tempore diſtabat quaſi 5′ à dicta Stella ad occaſum, *Lansbergius in Obſervat. Aſtron. Theſauro*, fol. 164.

Ad quod quidem tempus invenio verum Solis locum in gr. 15. 2′, 53″ ♉, longitudinem vero ſupremæ Stellæ in fronte ♏, gr. 27, 57′, 50″ ♏, & latitudinem, gr. 1. 5. boream.

JOVIS.	S. gr. ′ ″	
Medius motus ♃.	7 29 40 44	Logarithmus 573070
Aphelium	6 8 20 24	Reduct. 0′, 29″ ſub. curtat. 5
Anomalia æqualis	1 21 20 20	Scrup. proport. 39′, 45″.
Proſthaphæreſis ſubt.	4 8 23	Logarithmi { ⊙ 500480
Locus ♃ à ⊙ in Ellipſi	7 25 32 21	{ ♃ 573065
Nodus Boreus	3 7 1 42	Num. Logarithm. 927415
Anomalia Latitudinis	4 18 30 39	Emergit itaq; Parallaxis orbis
Reductio ſub.	0 29	Telluris in ♃ gr. 2. 24′, 40″
Locus Heliocentricus	7 25 32 50	addenda.
Locus verus Solis	1 15 2 53	Lat. ♃ maxima gr. 1. 40′ bor.
Anomalia Orbis	5 19 30 3	
Parallaxis add.	2 24 40	Ergo dabitur vera lat. ♃ borea
Locus Geocentricus	♏ 27 57 30	gr. 1. 6′, 15″.

21. Anno

21. Anno Chriſti 1639. die 3. Junii, veſperi, *Laurentius Eichſtadius Stetini vet. Pomeranorum*, videbat jubar *Jovis* clarum, ſupremam & borealem in fronte ♏, quæ eſt Stella ſecundæ magnitudinis, occultaſſe, etiamſi non fuerit centralis Synodus, ut illi teſtantur, qui Teleſcopio hanc occultationem Supremæ in fronte ♏, à Jove factam, notarunt. Obſervatio *Laurentii Eichſtadii* habita, 1639

Verus locus Solis tunc temporis erat in gr. 22, 24′, 34″ ♊. Logar. 500750

JOVIS	S	gr.	′	″	
Medius motus ♃	8	7	16	14	Logarithmus 572870
Aphelium	6	8	36	38	Reduct. 0′. 27″ add. curr. 4
Anomalia media	1	28	39	36	Scrup. proport. 33′, 50″.
Proſthaphæreſis ſubt.		4	33	5	Logarithmi { ☉ 500750
Locus ♃ à ☉ in Ellipſi	8	2	43	9	{ ♃ 572866
Nodus Boreus	3	7	4	19	Numerus Logarithm. 927884
Anomalia latitudin.	4	25	38	50	Paral. orb. annui in ♃, gr. 4.
Reductio add.				27	27′. 22″ ſubtrahenda.
Locus Heliocentricus	8	2	43	36	
Locus ☉	2	22	24	34	Lat. maxima, gr. 1. 39′, 20″
Anomalia Orbis	6	19	40	58	Ergo lat. quæſita gr. 0. 56′
Parallaxis ſubt.		4	27	22	1″ Borea.
Locus Geocentricus	♏	28	16	14	

Longitudo ſupremæ in fronte ♏, fuit in gr. 28. 8′, 1″ ♏, latitudo gr. 1. 5. borea; differentia igitur longitudinum ſtellæ fixæ & ♃, erat 8′ 13″, & differentia latitudinum 8′ 59″; erat itaq; ſuprema & borealis in fronte ♏, ſub fulgentibus ♃ radiis occulta. Omnibus modis ut *Eichſtadius* conſpexit.

22. Anno 1653, die 21 Auguſti, hor. 10. 40′ veſperi, conſpeximus ♃ ſtellam præcedere Stellam xix. ♑, tribus digitis ex parte longitudinis, auſtralioremq; eſſe vix integrâ Lunæ Semidiametro. Obſervatio loci Stellæ ♃ à nobis facta, anno Chriſti 1653.

Verus locus Solis tunc fuit in gr. 8, 38′, 23″ ♍. & Logar. 500355.

JOVIS	S.	gr.	′	″	
Medius motus ♃	10	18	58	0	Logarithmus 570438
Aphelium	6	8	55	41	Reductio 0′. 28″ ſub. curr. 4
Anomalia media	4	10	2	19	Scrup. proport. 36′, 31″.
Proſthaphæreſis ſub.		4	20	44	
Locus ♃ à ☉ in Ellipſi.	10	14	37	16	Logarithmi { ☉ 500355
Nodus Boreus	2	7	7	24	{ ♃ 570434
Argumentum latit.	7	7	29	52	Numerus Logar. 929921
Reductio ſubt.			0	28	Dabitur itaq; Paral. Orbis annui in ♃ gr. 5, 39′ 36″ ſubtr.
Locus Heliocentricus	10	14	36	48	
Locus Solis	5	8	38	23	
Anomalia Orbis	6	24	1	35	Ex Anom. orb. ſub num. Logar. datur Lat. Max. gr. 1. 39′:
Parallaxis ſubt.		5	39	36	Lat. itaq; quæſ. gr. 1. 0′ 15″
Locus Geocentricus	♒	8	57	12	auſtrina.

Stella xix ♑ (quæ eſt duarum in dorſo anterior) tunc tenebat gr. 9. 4′ 59″ ♒, cum latitudine gr. 0, 29 auſtrina, anteceſſit itaq; ♃ locum ſtellæ ſcrup. 7′ 48″, id eſt, digitis 3, & erat auſtralior 31′ 15″, quanta etiam fuit Semidiametrus Lunæ, quemadmodum *Luffenhamiæ* obſervavimus.

Obſervatio ♃ & Aſelli auſtr. 1659, à nobis habita.

23. Anno Chriſti 1659, die 1. Martii, hor. 8 56′ veſperi, conſpeximus *Luſſenbamia Jovis* Stellam in Meridiano diſtantem ab Aſello Auſtrali ad occaſum, reſpectu Culminationis palmo quaſi uno, vel paulo plus, nempe 14′. & tanta judicavimus Aſcenſionem rectam ♃, loci minorem eſſe aſcenſione recta Stellæ, diſtabatq; ♃ à Stella ad Boream verſus, vix uno gradu.

Verus locus Solis tunc fuit in gr. 21. 23′, 17″ ♓, & Logarithmus 499785.

JOVIS	S.	gr.	′	″
Medius motus ♃	4	6	42	57
Aphelium	6	9	3	7
Anomalia media	9	27	39	50
Proſthaphæreſis add.		4	44	2
Locus ♃ à ☉ in Ellipſi.	4	11	26	59
Nodus Boreus	3	7	8	36
Argumentum latitudinis	1	4	18	23
Reductio ſub.			0	27
Locus Heliocentricus	4	11	26	32
Locus Solis	11	21	23	17
Anomalia Orbis	7	9	56	45
Parallaxis ſubt.		7	56	51
Locus Geocentricus	♌	3	29	41

Logarithmus 572763
Red. 27″. ſubt. curt. 4
Scrup. proport. 33′. 48″.
Logarithmi { ☉ 499785
{ ♃ 572759
Numerus Logarithm. 927026
Erit igitur Parallaxis orb. annui in ♃ gr. 7. 56′. 51″ ſubt.

Lat. ♃ maxima g. 1. 34′. 42″.
Latitudo quæſita, gr. 0. 53′. 21″ borea.
Ergo Aſcenſio recta ♃ fuit gr. 126. 2′.

Locus Aſelli auſtralis tunc fuit in gr. 3. 56′ 37″ ♌, cum latitudine borea gr. 0 4′; ergo ſecundum Probl. 1. Cap. 2. Lib. 3. reperitur Aſcenſio ejus recta, gr. 126. 17′, ex quibus ſi auferatur 14′, quia anteceſſit ♃ Stellam, relinquitur Aſcenſio recta ♃, gr. 126. 3′, & quoniam differentia longitudinis ♃ & Stellæ fuit 26′ 56″, & latitudinum 49′ 21″, proinde Stellæ inter ſe diſtabant ſcrupul. 56′, i. e. unius quaſi gradus, quemadmodum nos obſervavimus.

Obſervatio altera à nobis facta, anno 1661.

24. Anno Chriſti 1661, die 12. Aprilis, hor. à Meridie 10. 20′, vidimus *Jovem* cum Stella 7. in Aſteriſmo ♍ fere culminantem; nam quando ♃ lineam meridianam tetigit, tunc fixa præcedebat centrum Stellæ ♃; in antecedentia Signorum 1′ 30″, & tantam judicavimus ♃ aſcenſionem ſuperare aſcenſionem Stellæ rectam, ſed erat ♃ inferior Stella gr. 1. $\frac{1}{7}$.

JOVIS	S.	gr.	′	″
Medius motus ♃	6	10	58	45
Aphelium	6	9	5	56
Anomalia media	0	1	52	49
Proſthaphæreſis			10	15
Locus ♃ à ☉ in Ellipſi.	6	10	48	30
Nodus Boreus	3	7	9	3
Anomalia latit.	3	3	39	27
Reductio add.			0	5
Locus Heliocentricus	6	10	48	35
Locus Solis	1	3	12	24
Anomalia Orbis	6	22	23	49
Parallaxis ſubt.		4	50	28
Locus Geocentricus	♎	5	58	7

Logarithmus ♃ 573763
Reductio 0′. 5″ add. curt. 12
Scrup. proport. 59′, 53″.
Logarithmi { ☉ 500336
{ ♃ 573751
Numerus Logar. 926585
Ergo,
Data eſt Paral. Orbis annui in ♃ gr. 4, 50′ 28″ ſubtr.

Max. Lat. ♃ Geoc. gr. 1. 38′ 0″.
Latit. quæſ. bor. g. 1. 37′ 49″.

Fuit locus Stellæ in gr. 5. 25′ 55″ ♍, latitudo gr. 2. 50′. borea, datur itaq; Aſcen-

Aſcenſio Stellæ recta gr. 186. 6′, quare habetur Aſcenſio recta ♃ gr. 186. 7′ ½. Hine ex data Aſcenſione ♃ recta, & ejus latitudine gr. 1. 38′, datur locus ♃ in gr. 5. 58′ ⅓, cum quo Calculus noſter ad amuſſim convenit.

§. VI.

Obſervationes Stellæ Martis.

1. ANno *Nabonaſſari* 476. die 20 *Athyr*, in diluculo vigeſimi primi, ſtella *Martis* matutina videbatur appoſita, ſeu adjuncta boreali fronti ♏, *Ptol.* lib. 10. *Almageſti*, cap. 9

Anno *Nabon.* 476. die 21. manè, Menſis *Athyr*, videbatur Stella Martis adpoſita fuiſſe Boreali fronti ♏.

Tempus hujus Conſiderationis erat anno *Nabonaſſari* 476. die 26 *Athyr*, hor. 14. 24′. ſub Meridiano Londinenſi; hoc eſt Sexagenæ dierum 48″ 10′ Dies 55. 36′ 9″, quibus debentur hi motus ſubſequentes.

Verus motus Solis erat in gr. 24. 54′ 31″ ♑, & Logarithmus 499506.
Fuit autem *Borealiſſima frontis* in gr. 2. 48′ 2″ ♍, & lat. gr. 1. 42 borea.

MARTIS	S	gr.	′	″	
Medius motus ♂	6	4	6	21	Logarithmus ♂ 519764
Aphelium	3	21	3	49	Reductio 0′ 47″ add. curt. 6
Anomalia media	2	13	2	32	Scrup. proport. 29′. 44″.
Proſthaphæreſis ſubt.		9	46	13	Logarithmi ⊙ 499506
Locus Heliocentricus	5	24	20	8	Logarithmi ♂. 519758 ſubt.
Nodus Boreus	0	24	2	50	Numerus Logar. 979748
Argumentum Latitudinis	5	0	17	18	
Reductio add.			0	47	Ergo dabitur Paral. Orb annui
Locus Heliocentricus reduct.	5	24	20	55	in ♂, gr. 38. 25′, 8″. add.
Verus Locus Solis	9	24	54	11	
Anomalia Orbis	4	0	33	36	Lat. Maxima. gr. 2. 8′ 0″
Parallaxis Orb. add.	1	8	25	8	Lat. ♂ Geocent. bor. 1. 3 26
Locus ♂ Geocentricus	♏	2	46	3	

Fuit igitur differentia longitudinum *Martis* & *fixæ* 2′ 39″, & differentia latitudinum 38′ 34″. Appoſita ergo erat Stella ♂ ad borealiſſimam in fronte ♏, quemadmodum *Alexandriæ* fuit obſervata.

2. Anno *Diocletiani* 214. *Pachon* die 6, quæ in 7. progrediebatur, hora noctis ſecunda, erat Stella ♂ ita juncta ſtellæ ♃, ut nullo intervallo à ſe diſtarent. Hanc obſervationem adducit *Bullialdus* ex *Codice* M. S. *Græco Bibliothecæ Regis Chriſtianiſſimi*, quæ ita ſe habet, ἔτους ἄλλου Διοκλ. σιδ′ ἀπὸ Διοκλητιανοῦ παχὼν ς β. τῆς ὥρας νυκτερινῆς βʹ τὸν ἀστέρα ἐφαπτόμενον τῷ Διΐ ὡς μηδὲν αὐτῶν εἶναι μεταξύ. Accidit hæc Conjunctio anno Chriſti 498. Maii die 1. hor. 7. 6′. *Londini*.

Anno Chriſti 498. erat ſtella ♂ ita juncta Stellæ ♃, ut nullo intervallo diſtarent.

Fuit tunc temporis verus locus Solis in gr. 12. 11′ 15″ ♉, & Log. 500632.

Verus locus ♃ erat in gr. 0. 29′ 0″ ♍, & ejus Logarithmus Curt. 573752

MARTIS.	ſig. gr. ' "	
Medius motus ♂	6 17 40 32	Logarithmus ♂ 59 8 85
Aphelium	4 6 37 59	Reduct. 42" add Curt. ſub. 4
Anomalia media	2 11 2 33	Scrup. proport. 25', 39".
Proſthaphæreſis ſubt	9 37 24	Logarith- ☉ 500632
Locus Heliocentricus	6 8 2 58	mi ♂ 519881 ſub.
Nodus Boreus	1 3 21 59	Numerus Logarith 980751
Argumentum Latitudinis	5 4 40 59	
Reductio add.	0 42	Erit ergo Paral Orb. annui in ♂ gr. 37. 32'. 37", ſubt.
Locus ♂ reductus	6 8 3 40	
Verus locus Solis	1 12 11 15	gr. ' "
Anomalia Orbis	7 4 7 35	Lat. Maxima 3. 8' 2
Parallaxis Orb.	1 7 32 37	Lat. ♂ Geoc. bor. 1 20 23
Locus Geocentricus ♂	♍ 0 31 3	

Differentia itaq; longitudinum ♃ & ♂ fuit 2' 3", & differentia latitudinum 1' 26", & proinde Stellæ inter ſe diſtabant 2', quæ æqualis eſt eorum Semidiametris, ita ut duo iſti Planetæ invicem ſe tetigerunt; omnibus modis ut *Athenis* conſpectum fuit.

Anno Chriſti 509. die 13. Jun. poſt Solis occaſum, Stella ♂ attigit ♃ ſtellam

3. Aliam horum Planetarum obſervationem ex eodem M. S. *Græco Codice*, adducit *Bullialdus*, lib. 8. *Aſtron. Philolaic.* fol. 327. τῷ αὐτῷ σκε Παϋνὶ ιθ' μετὰ ἡλίου δυσμὰς ὁ τοῦ Ἄρεως συνῆψε τῷ τοῦ Διὸς ὡς δοκεῖν αὐτῷ διεστάναι εἰς μὲν τὰ προηγούμενα δάκτυλον α' πρὸς δὲ νότον δακτύλους β'. &c. [Anno eodem 225. Pauni 19. poſt Solis occaſum Stella ♂ attigit ♃ ſtellam, ita ut ab ipſa diſtare videretur in antecedentia digito uno, in Auſtrum digitis duobus, quamvis numeri Canonis, & magnæ Syntaxeos iſtos duos Planetas oſtenderent in eadem parte ejuſdem menſis die 23, quando longè admodum à ſe invicem diſtantes viſi ſunt.] Cadit itaq; obſervatio in annum Chriſti 509, diem 13 Junii, hor. 8. 8', reſpectu Meridiani *Londinenſis*, quo tempore locus Solis verus juxta Tabulas noſtras erat in gr. 23. 32' 45" ♊, & ejus Logarithmus 500767. Verus locus ♃ fuit in gr. 12. 9' 41" ♌, Logar. Curt. 573583. Latitudo gr. 0. 53' 56" borea.

MARTIS	S. gr. ' "	
Medius motus ♂	5 15 56 48	Logarithmus 521429
Aphelium	4 6 51 30	Red. 50" add. Curt. 15 ſub.
Anomalia	1 9 5 18	Scrup. proport. 48', 20".
Proſthaphæreſis ſubt.	6 7 5 0	Logarith- ☉ 500767
Locus Heliocentricus	5 9 48 58	mi ♂ 521414 ſubt.
Nodus Boreus	1 3 30 4	Numerus Logarithm 979748
Argumentum latitudinis	4 6 18 54	
Reductio add.	0 50	Erit itaq; Parallaxis Orbis tel-
Locus Heliocent. Red.	5 9 49 48	luris in ♂ gr. 27. 45' 23", au-
Locus verus Solis	2 23 32 45	ferenda. gr. ' "
Anomalia Orbis	9 13 42 57	Lat. Maxima Geoc. 1 25 45
Parallaxis ſubt.	27 45 23	Lat. vera Borea. 1 9 4
Locus ♂ Geocentricus	♌ 12 4 25	

Locus ♃ Geocentricus erat in gr. 12 9' 41" ♌, cum latitudine gr. 0 53' 56" borea, & locus ♂ in gr. 12. 4' 25", cum latitudine gr. 1. 9' 4" borea; hinc liquet apparentem diſtantiam ♂ à ♃ fuiſſe in antecedentia Signorum digito uno, verſus plagam borealem duobus, ideo verba in hunc modum legenda cenſeo, πρὸς δὲ ἄρκτον δακτύλους β'. Nullo pacto aliter, quia in priori Conjunctione

ctione ♃ ♂ anno 498 (quæ hanc anteceſſit tantùm undecim annorum ſpatio) latitudo ♃ ad amuſſim obſervationi conſentit, atq; etiam ulterius confirmatur ab applicatione ♃ ad Cor ♌ Anno 508. Neq; ullus error fieri poteſt quoad locum ♃ Nodi, cujus ſi fieret depreſſio, ea ſaltem ad 20 grad. facienda, qualem quidem prior Ecliptica Conjunctio ♃ ♂ nullo pacto velit admittere, adeo ut certò concludamus quòd prout ♂ diſtabat à ♃ uno digito in antecedentia, ita ♃ diſtabat à ♂ duobus digitis Auſtrum verſus.

4. Anno Chriſti 1170, die 13 Septembris, circa mediam noctem duo Planetæ, nempe ♃ & ♂ ita conjuncti fuêre, ut nullo pene intervallo à ſe diſtarent, ſed illicò apparuerunt. Vide *Gervaſii Chronicon*, & *Aſtronomiam Carolinam Thomæ Streetii*, pag. 107. Anno 1170 Stella ♂ denuò attigit Jovis ſtellam.

Verus locus Solis tunc fuit in gr. 27, 15′ 52″ ♍, ejus Logarithm. 500004. Locus ♃ in gr. 11. 12′ 11″ ♊. Logar. Curt. 570669. Latitudo vera gr. 0. 50′ 33″ Auſtrina.

MARTIS.	S.	gr.	′	″
Medius motus ♂.	0	20	28	46
Aphelium	4	20	14	30
Anomalia media	8	0	14	16
Proſthaphæreſis add.		9	43	46
Locus Heliocentricus	1	0	12	32
Nodus Boreus	1	11	30	41
Argument. Latitudinis	11	18	41	51
Reductio ad.			0	21
Locus reductus	1	0	12	53
Locus verus Solis	5	27	15	52
Anomalia Orbis	4	27	2	59
Parallaxis add.	1	11	2	32
Locus ♂ Geocentricus	♊	11	15	25

Logarithmus ♂ 516559.
Reductio 21″ ad. curtat. 1
Scrup. proport. 11′, 45″.

Logarithmi	☉	500004
	♂	516558
Num. Logarithm.		983446

Hinc reperitur Parallaxis orbis annui in ♂ gr. 41. 2′ 32″ add.

	gr.	′	″
Lat. maxima Geocent.	3	16	11
Lat. Geocent. Auſtr.	0	38	25

Differentia itaq; longitudinum ♃ & ♂ erat ſcrup. 3′ 14″, & differentia latitudinum, ſcrup. 12′ 8″, ac proinde diſtabant inter ſe ſcrup. 12′ 46″, quæ animadverſioni quam proximè conſentiunt.

5. Anno 1462, die 15 Septembris, hor. quaſi 4. manè, *Joannes Regiomontanus* Stellam *Martis* conſpexit inter vii. & viii. ♌ tanquam in linea recta cum eis, diſtabat autem ab viii, ſcilicet *Corde* ♌, ſecundum quantitatem Diametri Solis fere verſus Septentrionem. Obſervatio *Regiomontani* anno 1462,

Erat tunc temporis verus Solis locus in gr. 0. 33′, 33″ ♎, Logarithmus 500024.

MARTIS	S.	gr.	′	″
Medius motus ♂	3	24	42	47
Aphelium	4	26	9	5
Anomalia media	10	28	33	42
Proſthaphæreſis add.		5	2	3
Locus ♂ in Ellipſi	3	29	44	50
Nodus Boreus	1	15	2	58
Argumentum latitudinis	2	14	41	52
Reductio ſubt.			0	29
Locus Heliocentricus	3	29	44	21
Locus Solis	6	0	33	33
Anomalia Orbis	2	0	49	12
Parallaxis add.		22	15	11
Locus ♂ Geocent.	♌	21	59	32

Logarithmus ♂ 521675
Reduct. 0′ 29″ ſubt. curt. 22
Scrup. Proport. 57′ 52.
Logarith-mi { ☉ 500024, ♂ 521653 }
Numerus Logarithm. 978371
Cum quo & Anomaliâ Orbis, reperitur Paral. Orbis Telluris in ♂ gr. 22. 15′ 11″ addenda.

	gr.	′	″
Lat. ♂ max. Bor.	1	19	31
Lat. vera Geocent. bo.	1	16	41

Fuit tunc vii Stella ♌ auſtralis 3 in collo, in gr. 20.23′ 24 ♌, cum latitudine borea, gr. 4. 52″. Et erat Cor ♌ in gr. 22. 20′ 24″ ejuſdem Signi, cum latitudine borea 26′ 30″, ergo ♂ tenuit gr. 21′ 59″ ♌, nam,
Ut differentia latitudinum fixarum gr. 4. 25′ 30″, ad differentiam longitudinum gr. 1 57′, ita differentia latitudinum ♂, & primæ fixæ Stellæ gr. 3. 35′ 19″, ad differentiam longitudinum, gr. 1 34′ 55″. Ergo dabitur longitudo ♂ in gr. 21 58′ 19″ ♌, omnino prorſus obſervationi conſentanea.

Altera Obſervatio *Regiomontani.*

6. Eodem Anno 1462, Octobris 16 die. hor. 11. ab occaſu Solis, i. e. die 15 Octobris, hor. 15. P. M. Meridiano *Londinenſi*, *Joannes Regiomontanus* obſervavit ♂ diſtare à Stella 24 ♌, Diametris 4. Veneris juxta viſum. Quo tempore verus locus Solis fuit in gr. 1. 21′ 6″ ♏, & ejus Logarithmus 499626.

MARTIS:	S.	gr.	′	″
Medius motus ♂	4	10	57	33
Aphelium	4	26	9	11
Anomalia media	11	14	48	22
Proſthaphæreſis add.		2	30	12
Locus ♂ in Ellipſi	4	13	27	45
Nodus Boreus	1	1.5	3	2
Argumentum latit.	2	28	24	43
Reductio ſubt.			0	2
Locus Heliocentric.	4	13	27	43
Locus Solis	7	1	21	6
Anomalia Orbis	2	17	53	23
Parallaxis add.		27	25	57
Locus ♂ Geocentricus	♍	10	53	40

Logarithmus ♂ 522028
Reductio 0′ 2″ Subt. curt. 23
Scrup. Proport. 59′ 58″
Logarith-mi { ☉ 499626, ♂ 522005 }
Numerus Logarithm. 977621
Dabitur itaq; Parallaxis annui Orbis in ♂ gr. 27. 25′ 57″ add.
Lat. max. g. 1. 27′ 20″ ergo invenitur lat. ♂ vera g. 1. 27′ 17″ borea.

Locus fixæ erat in gr. 11. 11′ 58″ ♍, cum latitudine gr. 1. 40. borea. Si autem accipiamus cum D. *BULLIALDO*, 6 Diametros Veneris propter explicationem Radiorum, & diſtantiam Stellæ *MARTIS* à Stella 24. Leonis, ſcrup. 15′, cadet verus locus ♂ Geocentricus in gr. 10. 56′ 58″ Virginis, qui ſolummodo recedit à noſtro Calculo 3′ 18″, nullius prorſus momenti, præcipuè quando facta fuit Obſervatio duntaxat nudo oculo.

…ſervatio ♃ & ♂ an. 1479. …bita à B. …ltbero.

7. Anno Chriſti 1472. die 30. Octobris, horâ 4, matutinâ, *BERNARDUS WALTHERUS* animadvertit *NORIMBERGÆ*, *Saturnum* diſtare à *Marte* Septentrionem verſus uno quaſi gradu. Vide obſervata *Bernardi Waltheri*.

Verus

Verus Locus Solis tunc temporis fuit in gr. 15. 19′ 11″ ♏, & ejus Logarithmus 499476.

Verus locus ♄ erat in gr. 26. 53′ 5″ ♍, Logarithmus, 597702, & vera latitudo Geocentrica, gr. 2. 5′ 43″ borea.

MARTIS	S.	gr.	′	″	
Medius motus ♂	5	2	15	6	Logarithmus ♂ 522120
Aphelium	4	26	29	52	Reduct. 30″ ad. turt. 21 ſubt.
Anomalia media	0	5	45	14	Scrup. Proport. 57′ 39″.
Proſthaphæreſis ſubt.		0	57	17	Logarithmi { ☉ 499476
Locus ♂ in Ellipſi	5	1	17	49	{ ♂ 522099
Nodus Boreus	1	15	15	25	Numerus Logarithm. 977377
Anomalia latit.	3	16	2	24	
Reductio add.			0	30	Ex Anomalia Orbis & numero Logarithmico, elicitur Paral. orbis annui in ♂ gr. 26. 8′ 27″ addend.
Locus Heliocentricus	5	1	18	19	
Locus verus Solis	7	15	19	11	
Anomalia Orbis	2	14	0	52	gr. ′ ″
Parallaxis add.		26	8	27	Lat. ♂ max. 1 25 37 bor.
Locus Geocent.	♍	27	26	46	Lat. quæſita 1 22 15 bor.

Locus *Saturni* erat in gr. 26. 53′ 5″ ♍, cum latitudine borea, gr. 2. 5′ 43″. & loc. ♂ in gr. 27. 26′ 46″ ejuſdem Signi, cum latitudine borea, gr. 1. 22′ 15″. Differentia igitur longitudinum fuit 33′ 41″ & differentia latitudinum 43′ 28‴; diſtabat itaq; *Saturnus* à *Marte* Septentrionem verſus 55′ hoc eſt, gradum quaſi unum, ut obſervavit *Bernardus Waltherus*.

Quoniam vero hæ Obſervationes non ſatis accuratè inſtituuntur, haud alias earundem inferemus, pedetentim autem ad ſcrutinium aliarum nuperiùs à *Mæſtlino*, *Keplero*, *Tychone*, & aliis obſervatarum deveniemus.

8. Anno Chriſti 1591. die 9. Januarii manè, *Michael Mæſtlinus* & *Joannes Keplerus* viderunt *Tubingæ*, totum ♃ à ♂ coopertum; nam color ♂ igneus rutilans arguebat eum inferiorem eſſe, *Kepler*. in *Aſtron. Opt*. pag. 305. Anno 1591. totus ♃ occultatus eſt à ♂.

Tempus Obſervationis erat annus 1591. dies 8. Januarii, hor. 17. 44′, aſtronomicè ſub Meridiano *Londinenſi*, quo tempore Sol vero ſuo motu tenebat gr. 28. 49′ 13″ ♑.

Verus locus ♃ Geocentricus fuit in gr. 15. 6′ 55″ ♏. Logarith. 573508 Latitudo gr. 1. 9′ 36″ borea.

MARTIS

MARTIS.	S.	gr.	′	″
Medius motus ♂	6	16	53	18
Aphelium	4	28	44	56
Anomalia media		18	8	22
Proſthaphæreſis ſubt.	1	7	19	9
Locus ♂ in Elliph	6	9	34	9
Nodus Boreus	1	16	36	15
Argumentum latit.	4	22	57	54
Reductio add.				50
Locus Heliocentric.	6	9	34	59
Locus Solis	9	28	49	13
Anomalia Orbis	3	19	14	14
Parallaxis add.	1	5	32	27
Locus ♂ Geocentricus	♏	15	7	20

Logarithmus 521072
Reductio 50″, Subt. curt. 8
Scrup. Proport. 36′ 8″
Logarithmi { ☉ 499282, ♂ 521064 }
Numerus Logarithm. 978218

Ex anomalia Orb. ſub num Logarithm. colligitur Paral. Orbis annui in ♂ gr. 35. 32′ 27″ add. & max. Lat. Geocen gr. 1. 53′ 1″.
Ergo datur
Lat. ♂ quæſ. bor. gr. 1. 8′4″

Differunt ergò ♃ & ♂ in longitudine o′. 31″, in latitudine 1′ 32″, ita ut omnino ſecundum hunc calculum ♃ à ♂ totus tectus fuerat, quemadmodum *Mæſtlinus* & *Keplerus* conſpexerunt.

Error Phil. Lansbergii.

PHILIPPUS LANSBERGIUS in Obſervationum Aſtrono-
micarum Theſauro, fol. 171. refert hanc *JOVIS* & *MARTIS* con-
junctionem ad diem octavum Januarii, contra apertam *MOESTLINI* & *KEP-*
LERI aſſertionem, qui eam collocant ad diem nonam, cui Calculus noſter
ad amuſſim conſentit, ut appareat in Paradigmate priori; ſed ne ultra deci-
piantur Lectores ſuavibus *Lansbergii* verbis, & magnis pollicitationibus, volo
ut Librum ante annos 20, à *JOANNE PHOCYLLIDE* editum inſpicerent,
in quo ejus errores omnibus manifeſtè conſpicerentur.

Collatio

Collatio Obſervationum Stellæ MARTIS à D. Tychone *olim facta-rum, unà cum vero ejus loco ſecundum Tabulas noſtras ſupputato.*

Temp. dat. Londini. Nu. An. Menſ. Dies Ho. '	Longit. ♂ media. S G ' "	Anomalia ♂ S G. ' "	Locus ♂ obſervatus S G '	Locus ♂ ex Tabulis. S G ' "	Diff. ' "
1 1582 Nov. 23 15 8	2 21 23 29	9 22 48 27	♋ 26 38 30	♋ 26 38 58	0+28
2 1582 Dec. 26 7 38	3 8 31 20	10 9 56 12	♋ 17 40 30	♋ 17 36 3	4−27
3 1582 Dec. 30. 7 18	2 10 26 41	10 12 1 31	♋ 16 0 30	♋ 15 59 4	1−26
4 1583 Jan. 20 5 23	3 24 43 9	10 26 7 53	♋ 8 20 30	♋ 8 18 12	2−18
5 1584 Dec. 21 13 8	3 29 7 1	11 0 29 26	♍ 1 13 30	♍ 1 14 59	1+29
6 1585 Jan. 24 8 8	4 16 49 35	11 18 11 54	♌ 24 7 30	♌ 24 3 33	3−57
7 1585 Feb. 4 5 48	4 22 32 24	11 23 54 41	♌ 19 47 0	♌ 19 43 49	3−11
8 1585 Mar. 12 9 38	5 11 29 26	0 12 51 36	♌ 11 46 0	♌ 11 42 25	3−35
9 1585 Apr. 26 8 50	6 5 3 22	1 6 25 23	♌ 21 26 0	♌ 21 27 40	1+40
10 1585 Maii. 18 9 38	6 16 36 11	1 17 58 7	♍ 0 50 45	♍ 0 53 27	2+42
11 1586 Oct. 21 17 8	3 19 48 26	10 21 8 39	♍ 0 7 0	♍ 0 4 54	2− 6
12 1586 Nov. 30 18 38	4 10 48 11	11 12 8 15	♍ 20 4 30	♍ 20 4 50	0+20
13 1586 Dec. 26 15 8	4 24 21 8	11 25 41 7	♍ 29 42 40	♍ 29 43 9	0+29
14 1587 Jan. 25 16 8	5 10 5 46	0 11 25 39	♎ 4 42 0	♎ 4 42 21	0+21
15 1587 Mart. 4 12 32	5 29 55 56	1 1 15 41	♍ 26 25 40	♍ 26 23 56	1−44
16 1587 Mart. 10 10 38	6 3 2 7	1 4 21 52	♍ 24 5 15	♍ 24 5 12	0− 3
17 1587 Apr. 21 8 38	6 25 0 10	1 26 19 46	♍ 15 48 20	♍ 15 49 21	1+ 1
18 1588 Nov. 9 17 38	4 22 52 15	11 24 9 57	♍ 25 31 0	♍ 25 34 2	3+ 2
19 1588 Dec. 4 17 8	5 5 57 41	0 47 45 13	♎ 9 23 0	♎ 9 24 27	1+27
20 1588 Dec 14 17 18	5 11 12 22	0 12 29 57	♎ 14 35 40	♎ 14 38 24	2+44
21 1589 Mart. 8 15 32	6 25 11 21	1 26 28 40	♏ 12 16 50	♏ 12 14 24	2−26
22 1589 Apr. 13 10 23	7 13 56 36	2 15 13 48	♏ 4 43 20	♏ 4 45 23	2+ 3
23 1589 Apr. 15 11 13	7 15 0 36	2 16 17 48	♏ 3 58 20	♏ 4 0 54	2+34
24 1589 Maii 6 10 28	7 25 59 56	2 27 17 3	♎ 27 7 20	♎ 27 9 58	2+38
25 1589 Sept. 15 6 23	10 5 5 14	5 6 21 55	♐ 16 44 30	♐ 16 41 18	3−12
26 1589 Dec. 3 4 47	11 16 27 13	6 17 43 39	♒ 15 25 33	♒ 15 23 47	1−46
27 1590 Mart. 4 6 18	1 4 10 38	8 5 26 44	♓ 24 22 56	♈ 24 20 25	2−21
28 1590 Oct. 5 15 53	4 27 3 40	11 28 19 4	♍ 17 20 0	♍ 17 22 50	2+50
29 1590 Oct. 30 17 23	5 10 11 45	0 11 27 4	♎ 2 57 20	♎ 2 57 22	0+ 2
30 1591 Feb. 18 16 38	7 8 21 5	2 9 36 1	♐ 7 34 20	♐ 7 35 19	0+59
31 1591 Mai. 13 13 8	8 22 17 47	3 23 32 25	♑ 2 20 0	♑ 2 18 1	1−59
32 1591 Jun. 6 11 28	9 4 50 18	4 6 4 50	♐ 27 15 0	♐ 27 13 12	1−48
33 1591 Jun. 10 10 58	9 6 55 25	4 8 9 56	♐ 26 2 36	♐ 26 0 9	2−27
34 1591 Jun. 28 9 32	9 16 19 31	4 17 33 59	♐ 21 10 0	♐ 21 7 29	2−31
35 1591 Oct. 16 5 36	11 13 53 13	6 15 7 19	♒ 1 27 18	♒ 1 25 41	1−37
36 1592 Jan. 23 6 28	1 5 47 21	8 7 1 10	♈ 11 32 44	♈ 11 30 15	2−29
37 1593 Jul. 21 13 8	10 21 33 10	5 22 45 11	♓ 17 45 45	♓ 17 45 12	0−33
38 1593 Aug. 22 11 28	11 8 17 12	6 9 29 7	♓ 13 10 15	♓ 13 11 35	1+20
39 1593 Aug. 29 9 28	11 11 54 41	6 13 6 35	♓ 11 14 0	♓ 11 17 4	3+ 4
40 1593 Oct. 3 7 8	0 0 12 10	7 1 23 57	♓ 7 50 10	♓ 7 51 9	0+59
41 1555 Sept. 17 15 53	0 14 34 48	7 15 44 12	♉ 26 7 12	♉ 26 7 52	0+40
42 1595 Oct. 27 11 28	1 5 26 48	8 6 36 4	♉ 18 51 15	♉ 18 51 59	0+44
43 1595 Nov. 3 11 8	1 9 6 27	8 10 15 42	♉ 16 [illegible] 30	♉ 16 18 36	0+ 6
44 1595 Dec. 18 7 8	2 2 36 12	9 3 45 18	♉ 11 40 0	♉ 11 37 55	2− 5
45 1596 Mart. 9 6 48	3 15 34 12	10 16 43 0	♊ 15 49 12	♊ 15 47 34	1−38
46 1600 Mart 6 5 26	4 29 38 3	0 0 42 1	♋ 29 18 30	♋ 29 15 55	2−35

Ecce mirabilis conſenſus Tabul. cum cœlo.

Obſervatio ♃ & ♂, an. 1644. à nobis facta.

55. Anno 1644, die 28 Julii, hor. 2. manè, obſervavimus *LUFFENHAMIÆ* Conjunctionem ♃ & ♂ in parte Cœli orientali, eratq; ♃ borealior digitis quaſi tribus.

Verus locus Solis tunc erat in gr. 14. 51′, 5″ ♌, Logarith. ⊙ 500602.

Locus ♃ Geocentricus in gr. 28. 17′ 4″ ♉, Logarithmus curt. 570033, vera latitudo Geocentrica, gr. 1. 0′ 53″ auſtrina.

MARTIS	S	gr.	′	″	
Medius motus ♂	0	7	5	34	Logarithmus 515128
Aphelium	4	29	49	56	Reductio 49″ add. curt. 7 ſub.
Anomalia media	7	7	15	38	Scrup. proport. 32′. 45″.
Proſthaphæreſis add.		7	3	49	Logarith-mi { ⊙ 500602
Locus ♂ in Ellipſi	0	14	9	23	{ ♂ 515121
Nodus Boreus	1	17	15	10	Numerus Logar. 985481
Argumentum Latitudinis	10	26	54	13	
Reductio add.				49	Anom orb. ſub Ind. Num. Log.
Locus Heliocentricus	0	14	10	12	lat orb. Telluris Paral. in ♂ gr.
Verus Locus Solis	4	14	51	5	44. 7′ 38″ addend.
Anomalia Orbis	4	0	40	53	Eodem prorſus modo dabitur
Parallaxis add.	1	14	7	38	max. lat. ♂ Geoc. gr. 2.5,29 auſt.
Locus ♂ Geocentricus	♉	28	17	50	Ergo lat. ♂ quæſ. gr. 1.8.30 auſt.

Differentia igitur longitudinum erat 0′ 46″, & differentia latitudinum 7′ 37″; itaq; diſtabat ♃ à ♂ Septentrionem verſus 7′ 39″, i. e. digitis quaſi tribus, quemadmodum nos animadvertimus.

Obſervatio altera à nobis habita, anno 1644.

56. Eodem quoq; anno 1644. die Novembris 11, hor. 6. mane, conſpeximus *Luffenhamiæ*, Stellam *Martis* diſtare à Stella in boreali & ſupremo genu ♊, digitis quaſi quatuor ad auſtrum, inclinabatq; ille autem à fixa ad occaſum, reſpectu ſitus Zodiaci, ſecundum quantitatem unius digiti.

Locus Solis verus erat in gr. 29 31′ 59″ ♏, & ejus Logarithmus 499373

MARTIS.	ſig.	gr.	′	″	
Medius motus ♂	2	2	43	54	Logarithmus 518854
Aphelium	4	29	50	17	Reduct 4 3″ ſubt. Curt. 4
Anomalia media	9	2	53	37	Scrup. proport. 26′, 15″.
Proſthaphæreſis add.		10	28	35	Logarith-mi { ⊙ 499373
Locus ♂ à ⊙ in Ellipſi	2	13	12	29	{ ♂ 518850
Nodus Boreus	1	17	15	23	Numerus Logarith. 980523
Argumentum Latitudinis	0	25	57	6	
Reductio ſubt.				43	Ergo data eſt Paral. Orb. annui in ♂ gr. 21. 41′ 12″, add. ut ex propria tabula colligitur.
Locus Heliocentricus	2	13	11	46	
Verus locus Solis	7	29	31	59	
Anomalia Orbis	5	16	20	13	Lat. Max. Geoc. gr. 4.31′ 32″.
Parallaxis add.	1	21	41	12	Lat. ♂ quæſ. bor. 1.58 47
Locus Geocentricus ♂	♋	4	52	58	

Stella fixa erat in gr. 4. 58′ 36″ ♋, cum latitudine borea, gr. 2, 11′, diſtabat itaq; ♂ à Stella ad Auſtrum verſus 13′ 27″, vel digitis 4, inclinans ad occaſum quantitate unius digiti, quemadmodum *Luffenhamiæ* nos obſervavimus.

57. Anno

57. Anno 1588. die 17. Octobris, circitèr ſeptimam matutinam, apparuit *Tychoni* viſibilis ☌ ♃ ♂ (ut memorat *Eichſtadius*, fol. 160. *Tab. Hirr.*) nam linea recta per illos Planetas ducta in ſtellam Polarem, vel paulò infra, non enim licuit propter auroram adeo accuratè rem diſcernere. *Jupiter* autem meridionalior fuit ipſo *Marte* ad quantitatem Diametri Lunæ. Obſervatio ☌ ♃ ♂ Tychonica, an. 1588

Tunc erat verus locus Solis in gr. 3. 54′ 27″ ♏. Logar. 499622, verus locus ♃ in gr. 11, 35′ 0″ ♍, cum latitudine borea, gr. 1, 1′ 37″.

MARTIS	S.	gr.	′	″	
Medius motus ♂	4	10	18	14	Logarithmus 521978
Aphelium	4	28	42	12	Reduct. 5″ ſub. Curt 23
Anomalia media	11	11	36	2	Scrup. proport. 59′, 54″.
Proſthaphæreſis add.		3	1	10	Logarith. ⊙ 499622
Locus ♂ in Ellipſi	4	13	19	24	. mi ♂ 521955
Nodus Boreus	1	16	34	27	Numerus Logarithm. 977667
Argumentum latitudinis	2	26	44	47	
Reductio ſubt.				5	Ergo dab. Paral. Orbis annui in
Locus Heliocentricus	4	13	19	19	♂ gr. 28. 15′ 22″ addend.
Locus verus Solis	7	3	54	27	
Anomalia Orbis	2	20	35	8	Lat. Maxima gr. 1. 28′ 55″.
Parallaxis add.		28	15	22	Lat. ♂ quæſita gr. 1, 28 46
Locus Geocentricus	♍	11	34	41	

Differentia itaq; longitudinum ♃ & ♂ erat 0′ 19″, & differentia Latitudinum, 27′ 9″, fuit ergo ♃ meridionalior ♂ ad quantitatem Diametri Lunæ. Et quoniam reperitur Aſcenſio recta ♃, gr. 163, 25′, & aſcenſio recta ♂, gr. 163. 35′; ergò recta linea per hos duos Planetas ducta, debet incidere paulò infra Stellam Polarem, quemadmodum habet Obſervatio.

§. VII.

Obſervationes Stellæ Veneris.

1. ANno *Nabonaſſari* 476. die 17 *Meſori*, horis à Meridie 17. Alexandriæ, *Timocharis* vidit Stellam *Veneris* occupaſſe Stellam, quæ nominatur præcedens quatuor illarum in ala ſiniſtra ♍, cujus longitudo tunc erat in gr. 3. 1′ 48″ ♍, cum latitudine gr. 1. 25′ borea. *Ptolemeus*, lib. 10. cap. 4. *Operis Magni*.

Obſervatio Timocharidis, an. 272. ante Chriſtum, quo tempore ſtella ♀ manè viſa eſt comprehendiſſe, ſeu ut Theon exponit, obtenebraſſe oppoſitam vindemiatrici, quæ in extremo Alæ auſtrinæ ſita eſt.

Locus Solis verus erat tunc temporis in gr. 14. 56′ 57″ ♎, & Logarithmus 499480.

VENERIS	S.	gr.	′	″	
Medius motus ♀	2	27	9	7	Logarithmus ♀ 485667
Aphelium	8	12	7	37	Red. 2′ 45″ ſub. curt. 22 ſubt.
Anomalia media	6	14	1	30	Scrup. Proport. 32′ 52″.
Proſthaphæreſis add.			12	15	Logarith- ♀ 485645
Locus ♀ in Ellipſi	2	27	21	22	mi ☉ 499480
Nodus Boreus	1	24	8	33	Numerus Logarithm. 986165
Argument. latit.	1	3	12	49	
Reductio ſubt.			2	45	
Locus Heliocentricus	2	27	18	37	Reperitur ergo Paral. orb. ♀ in
Locus verus Solis	6	14	56	57	Tellure gr. 41. 38′ 14″ ſubtr.
Anomalia Orbis	8	12	21	40	Lat. max. Geoc. gr. 2. 21′ 37″
Parallaxis ſub t.	1	11	38	14	Lat. ♀ quæſ. B A. g. 1. 17 34
Locus Geocent.	♍	3	18	43	

Diſtabat itaq; *VENUS* à Stella ſcrup. 16′ 55″ in conſequentia, ad Auſtrum vero ſcrup. 7. 26″, adeo ut videretur Stella, nudo oculo, ſub radiis *VENERIS* affulgentibus latuiſſe. Et verba equidem *Ptolemæi* non ſignificant *VENEREM* obſcuraviſſe Stellam illam, ſed adſecutam fuiſſe, propterea non ſupponenda eſt ♀ tam præciſè juncta huic fixæ (ut verbis *Bullialdi* uteremur) cum certum ſit explicationem fulgentium radiorum *Veneris* priùs ſubtraxiſſe Stellam oculo, quam interpoſitus fuerit ille Planeta inter fixam & oculum *Timocharidis*; ut rectè obſervat Doctiſſ. *Iſmael Bullialdus* in *Aſtron. Philolaic.* fol. 350.

THEONIS Obſervatio, anno Chriſti 132 facta.

2. Anno ſexto decimo *ADRIANI*, ſeu 879 *NABONASSARI*, die 21. *Pharmuthi*, horâ 5. reſpectu Meridiani Londinenſis, viſa eſt *Venus* à *THEONE* Alexandrino Mathematico, præcedere lucidam Pleiadum ſecundum longitudinem Pleiadum, *Ptol.* lib. 10. *Almageſti*, cap. 1.

Locus Solis verus erat in gr. 17. 30′ 8″ ♓. Logar. 500082.

VENERIS	S.	gr.	′	″	
Medius motus ♀	4	11	38	43	Logarithmus ♀ 485769
Aphelium	8	22	59	32	Red. 1′ 34″. ſubt. curt. 69
Anomalia media	7	18	39	11	Scrup. proport. 57′. 40″.
Proſthaphæreſis add.			37	54	Logarith- ♀ 485700
Locus ♀ ex ☉.	4	12	16	37	mi ☉ 500082
Nodus Boreus	1	28	15	54	Numerus Logarithm. 985618
Argumentum latitudinis	2	14	0	43	
Reductio ſub.			1	34	
Locus Heliocentricus	4	12	15	3	Parallaxis orb. ♀ in tellure gr.
Locus Solis	11	17	30	8	45. 3′ 57″ addenda.
Anomalia Orbis	4	24	44	55	Lat. max. ♀ Geoc. g. 4. 8′ 0″
Parallaxis add.	1	15	3	57	Latit. vera, gr. 3. 58′ 21″ Bor.
Locus Geocentricus	♉	2	34	5	

Lucida Pleiadum erat in gr. 3. 48′ 16″ ♉, cum latitudine borea, gr. 4. 0′ 0″; ergo *Venus* præcedebat Lucidam Pleiadum, gr. 1. 14′ 11″, ſecundum longitudinem *Pleiadum*, omnibus modis ut *Theon* obſervavit *Alexandriæ*. Nunc ad aliam obſervationem, quæ in libro M. S. *Bibliothecæ Regis Chriſtianiſſimi* reperitur, properabimus.

3. Anno

3. Anno 226 *Diocletiani*, viſa eſt *VENERIS* Stella præcedere *Jovis* ſtellam utplurimum digitis 20, vigeſima octava verò ſequi videbatur digitis 10. Penes latitudinem verò nulla differentia apparuit, oportuit certè juxta calculum *Ephemeridum*, ipſos cunctos cerni Planetas triceſima die Menſis, cum tamen tunc temporis longo intervallo diſcreti à ſe invicem apparuerint. — Obſervatio ♃ & ♀ ex Græco M. S. libro Bibliothecæ Regis Chriſt. excerpta.

In Obſervationeiſta menſis non eſt expreſſus, necnon dies primæ obſervationis, ſed ex calculo Aſtronomico, & Tabulis *Ptolemai*, evincitur contigiſſe horum 2 Planetarum congreſſus circa finem *Meſori*; conſtat enim hanc applicationem *Veneris* ad *Jovem* eſſe factam, diebus 25 & 28 menſis *Meſori*, annò à *Diocletiano* 226. ferè peracto. Hoc reſpondit anno Chriſti 510, diebus 18, & 21 Auguſti, horis ſub Meridiano *Londinenſi* 6. reductis.

Ad diem 18. Auguſti, hor. 6. verus locus Solis juxta Tabulas noſtras erat in gr. 26. 35′ 5″ ♌, Logar. 500261.

VENERIS	S.	gr.	′	″
Medius motus ♀.	6	14	39	39
Aphelium	9	2	16	14
Anomalia media	9	12	23	25
Proſthaphæreſis add			49	6
Locus ♀ à ☉ in Ellipſi	6	15	28	45
Nodus Boreus	2	2	8	32
Anomalia Latitudinis	4	13	20	13
Reductio ad.			2	59
Locus Heliocentricus	6	15	31	44
Locus verus Solis	4	26	35	5
Anomalia Orbis	1	18	56	39
Parallaxis add.		20	14	21
Locus ♀ Geocentricus	♍	16	49	26

Logarithmus ♀ 486047
Reductio 2′ 59″ ad. curtat. 40
Scrup. proport 43′, 39″.
Logarithmi ♀ 486607
Logarithmi ☉ 500261
Num. Logarithm. 985746

Hinc reperitur Parallaxis orbis ♀ in tellure gr. 20. 14′ 21″ add.

	gr.	′	″
Lat. maxima Geocent.	1	32	35
Vera Lat. Borea.	1	7	21

Locus ♃ erat in gr. 18. 51′ 34″ ♍, cum latitudine borea, gr. 1. 8′. Die itaq; 25. antecedebat *Venus Jovem* ſcrup. 122′, die verò 28. ſequebatur ipſum ſcrup. 62′. Exceſſus veri motus ♀ ſupra ♃ in tribus diebus eſt, gr. 3. 4′, qui faciunt digitos 30, propterea die 25 ♀ erat à ♃ dig. 20 in antecedentia, & die 28. dig. 10 in conſequentia, ut habet Obſervatio.

Enumeratio Obſervationum VENERIS ad fixas à Theone *&* Ptolemæo *olim factarum, unà cum loco* Solis, Veneris, *& hujus ab illo, evagatione (ut vult* Ptolemæus*) maxima.*

Obſervationes ♀ ſex antiquæ.

N.	Epochæ	A.	Menſes.	D.	Moment.	Medius locus ☉. S.	gr.	′	Locus ♀ S	gr.	′	Digreſſio max. à ☉ Gr	′	
1	Adriani	12	Athyr	21	Manè ſeq.	♎	17	52	♍	0	20	47	32	M
2	Adriani	13	Epiphi	2	Manè ſeq.	♉	25	24	♈	10	36	44	48	M
3	Adriani	16	Pharm.	21	Veſperi	♓	14	15	♉	1	30	47	15	V
4	Adriani	21	Tibi	2	Veſperi	♏	25	30	♑	12	50	47	20	V
5	Adriani	21	Mechir	9	Veſperi	♑	2	4	♒	19	36	47	32	V
6	Anton.	4	Thoth	11	Manè ſeq.	♌	5	45	♊	18	30	47	15	M

Collatio

Collatio Obſervationum VENERIS præmiſſarum cum Tabulis noſtris Aſtronomicis. Tempore ad Æram Chriſti, Meridianumq; **Londinenſem *reducto.***

Tempus medium Londini					Verus locus ☉				Verus locus ♀				Digreſſio ♀ à medio loco ☉			
Ann Chr.	Menſes	Dies	Hor.	′	S.	gr.	′	″	S	gr.	′	″	gr.	′	″	
127	Octob.	11	16	28	♎	17	24	29	♍	1	52	58	47	9	52	M
129	Maii	19.	15	18	♉	27.	3	50	♈	12	7	18	44	27	58	M
132	Martii	8	6	22	♓	17	33	28	♉	2	36	42	47	5	18	V
136	Novem	18	5	22	♏	26	20	42	♑	12	15	57	45	34	49	V
136	Decem.	25	5	8	♑	4	7	41	♒	20	14	43	46	7	1	V
140	Julii	29	15	20	♌	5	13	55	♊	24	44	34	46	.9	22	M

10. Anno Chriſti 1494, die 19. Septembris, horâ 5 matutinâ, obſervata eſt ♀ *Norimbergæ* à *Bernardo Walthero*, diſtare à Corde ♌, ad Auſtrum, uno palmo, & ad occaſum, ſcrup. 10. Diſtabant igitur Stellæ inter ſe ſcrup. 17′.

Verus locus Solis tunc fuit in gr. 4. 47′ 21″ ♎, Logar. 499977.

VENERIS	S.	gr.	′	″
Medius motus ♀	2	14	0	15
Aphelium	9	26	23	49
Anomalia media	4	17	36	26
Proſthaphæreſis ſubt.			34	4
Locus ♀ à ☉ in Ellipſi	2	13	26	11
Nodus Boreus	2	12	13	26
Argumentum latit.	0	1	12	45
Reductio ſubt.			0	8
Locus ♀ Heliocentric.	2	13	26	3
Locus Solis	6	4	47	21
Anomalia Orbis	8	8	38	42
Parallaxis ſubt.	1	12	37	13
Locus ♀ Geocentricus	♌	22	30	8

Logarithmus 485744
Reductio 0′8″ Subt. curt. 0
Scrup. Proport. 1′ 15″
Logarithmi { ♀ 485744 / ☉ 499977 }
Numerus Logarithm. 985767
Ergo emergit Paral. Orb. ♀ in Tellure gr. 42. 17′ 23″ auferenda.

max. Lat. Geoc: gr. 2. 26′ 15″.
Lat. vera Sept. Aſc. gr. 0 3 3

Erat Cor ♌ in gr. 22. 47′ 19″ ♌, cum latitudine borea 26′ 30″; differentia igitur longitudinis erat 17′ 11″, & differentia latitudinis 23′ 27″. Dubia verò eſt iſta obſervatio, cum nudo oculo fuit facta, nam certum eſt diſtantiam *Cordis* à *Venere* majorem tunc fuiſſe, quàm refert *Waltherus*, quoniam in tanta propinquitate Radii vibrati ſemper diſtantiam coarctant, ut in omnibus aliis hujuſcemodi Obſervationibus comprobatum eſt; ſtatuamus itaq; intervallum aliquot ſcrup. majorem 12′, & tunc faciemus diſtantiam ſcrup. 29′, quæ calculo noſtro exactè reſpondit. Sed jam ad alias, quæ ma[illegible]curatè inſtituuntur, properamus.

Cor ♌ à ♀ coopertum Anno 1574. die 16. Sept.

11. Anno Chriſti 1574. die 16. *Septembris*, hor. 4. manè, *Michael Maſtlinus* conſpexit *Cor Leonis* à *Venere* coopertum, *Kepler. in Aſtron. Optica*, pag. 305.

Erat tempus Obſervationis in *Meridiano Londinenſi*, hor. 3. 22′ manè, quo tempore verus locus Solis fuit in gr. 2. 23′ 51″ ♎, Logar. 500028.

VENE-

VENERIS	S	gr.	′	″	
Medius motus ♀	2	24	30	27	Logarithmus 485713
Aphelium	9	28	21	28	Reduct. 1′, 8″ ſubt.. curr. 4
Anomalia media	4	26	8	59	Scrup. proport. 11′, 27″.
Proſthaphæreſi ſubt.			28	10	Logarith-mi ♀ 485709
Locus ♀ ex ☉	2	24	2	17	Logarith-mi ☉ 500028
Nodus Boreus	2	13	2	35	Numerus Logarithm. 965081
Argument. latitudin.	0	10	59	42	Paral. orb. ♀ in Tellure erit gr.
Reductio ſubt.			1	8	38. 28′ 28″ ſubtrahenda.
Locus Heliocentricus	2	24	1	9	
Locus ☉	6	2	23	51	
Anomalia Orbis	8	21	37	18	Lat. max. Geoc. gr. 2. 7′, 45″.
Parallaxis ſubt.	1	8	28	28	Lat. quæſ. Bor. gr. 0. 24 23
Locus Geocentricus	♌	23	55	23	

Erat Cor ♌ in gr. 23. 54′ 36″ ♌, cum latitudine borea 26′ 30″; differentia igitur longitudinum fuit ſcrup. 0′ 47″, & differentia latitudinum, ſcr. 2′ 7″. Diameter autem ♀ viſa erat ſcrup. 3′. Obtexit ergo *Venus* Cor ♌, prout obſervavit *Mæſtlinus*.

Anno 1590, die 3. Octobris, horâ 5. matutinâ, *Michael Mæſtlinus*, *Tubingæ*, vidit ♂ à ♀ ferè tectum, *Kepler* in *Aſtronomia Optica*, pag. 305. Mars à Venere obtectus, anno 1590 die 3. Octob. mane.

Locus Solis tunc fuit in gr. 19. 22′ 16″ ♎, Logarithmus 499804.

VENERIS	S.	gr.	′	″	
Medius motus ♀	3	24	52	55	Logarithmus 485659
Aphelium	9	28	45	5	Reductio 2′. 58″ ſub. curr. 33
Anomalia media	5	26	7	50	Scrup. proport. 39′, 51″.
Proſthaphæreſi ſub.			3	24	Logarith-mi ♀ 485626
Locus ♀ in Eclipſi.	3	24	49	31	Logarith-mi ☉ 499804
Nodus Boreus	2	13	12	28	Numerus Logar 985822
Argumentum latit.	1	11	37	3	Ergò
Reductio ſubt.			2	58	Dabitur Paral. Orbis ♀ in tel-
Locus Heliocentricus	3	24	46	33	lure gr. 33, 55′ 27″ ſubtr.
Locus Solis	6	19	2	16	
Anomalia Orbis	9	5	24	17	Max. Lat. Geoc. gr. 1. 53′ 25″.
Parallaxis ſubt.	1	3	25	17	Lat. vera gr. 1. 15′ 19″ Borea.
Locus ♀ ex Terra	♍	15	20	49	

Stella ♂ erat in gr. 15. 30′ 51″ ♍, cum latitudine borea gr. 1. 16′ 4″; Differentia igitur longitudinum *Martis* & *Veneris* fuit 2′ 4″, & differentia latitudinum 0′ 45″; ergo ſecundum noſtram ſupputationem *Venus* tegere debet *MARTEM*. *Nec eſt erronei Calculi indicium tantula diſcrepantia*, (ut ait *Keplerus*, *Tab. Rudolph.* fol. 68.) *quin potiùs ea videtur ab Obſervatore confirmari; dicit enim ſe diſcrimen animadvertiſſe colorum, rutili in Marte, & aurei in Venere, indeq; conjecturam capi potuiſſe MARTIS ſupra VENEREM à centro Terræ longiùs elevati, cum Veneris color aureus totum ferè Martis rutilum deleverit, ut vix parùm ille ex una ſcil. parte effulgeret. Atqui ſi Conjunctio centralis omnino fuiſſet ad viſum, nullum rutili coloris veſtigium de Marte ſupereſſe potuiſſet: quippe Martis (in hac altitudine duplo ferè majori quam Veneris) Diameter corporis omnino minor fuit.*

13. Anno

Anno Chriſti 1598. die 15. Septembris, inter horas 2 & 3. manè, vix ortâ *Venere*, *Joannes Keplerus* conſpexit *Gratii in Stiria*, Cor ♌ à *Venere* tectum, *Kepl. in Aſtron. Opt.* pag. 305.

Verus locus Solis tunc fuit in gr. 1, 30′, 53″ ♎. Logar. 500046.

VENERIS	S. gr. ′ ″		
Medius motus ♀	2 27 23 5	Logarithmus ♀	485707
Aphelium	9 28 56 47	Red. 1′ 22″ ſub. curt.	5
Anomalia media	4 28 26 18	Scrup. Proport. 14′ 1″ 0‴.	
Proſthaphæreſis ſubt.	26 28	Logarithmi ♀	485702
Locus ♀ à ☉ in Ellipſi	2 26 56 37	Logarithmi ☉	500046
Nodus Boreus	2 13 17 21	Numerus Logarithm.	985656
Argument. latit.	0 13 39 16		
Reductio ſubt.	1 22		
Locus Heliocentricus	2 26 55 15	Paral. orb. ♀ in Tellure (ex Tabula propria) elicitur gr. 37 14′ 7″ ſuber.	
Locus verus Solis	6 1 30 53		
Anomalia Orbis	8 25 24 22	Lat. max.	gr. 2. 2′ 55″
Parallaxis ſubt.	1 7 14 7	Lat. vera Bor.	gr. 0.29 1
Locus Geocent.	♌ 24 16 40		

Cor ♌ tunc erat in gr. 24 14′ 47″ ♌, cum latitudine borea 26′ 30″; differentia igitur longitudinum fuit 1′ 59″, & differentia latitudinum 2′ 31″, Diameter apparens ♀ erat Scrup 3. ergo erat Cor ♌ à ♀ coopertum, quemadmodum Doctiſ. *Jo. Keplerus* conſpexit:

Collatio Locorum Veneris *obſervatorum* à Tychone, Longomontano, *&* Bullialdo, *& cum Tabulis noſtris Aſtronomicis comparata.*

N	Temp. app. *Lond* Ann	Menſ.	D	ho. ′	Loc. ♀ obſerv. S. gr. ′	Latitud obſerv. gr. ′	Locus ♀ ex Tabulis. S. gr. ′ ″	Latit. ♀ ex Tab. gr. ′	Differ. Longit. ′	Differ. Latitud. ′
1	1585	Sept.	14	16 23	♌ 15 58	2 8 M	♌ 15 54 57	2 10 M	3 −	2 +
2	1587	Jan.	15	3 48	♓ 16 55	2 39 B	♓ 17 8 14	2 36 B	13 +	3 −
3	1587	Mar	21	5 13	♓ 16 1	0 56 B	♓ 16 4 49	8 46 B	3 +	10 −
4	1587	Mar.	2	16 38	♐ 10 7	8 26 B	♓ 10 22 23	8 17 B	15 +	9 −
5	1588	Dec.	14	18 48	♏ 17 10	3 10 B	♏ 17 8 33	3 4 B	1 −	6 −
6	1590	Dec.	17	19 8	♐ 20 0	0 27 B	♐ 20 1 59	0 25 B	2 +	2 −
7	1592	Feb.	22	16 38	♑ 27 20	2 22 B	♑ 27 17 13	2 22 B	3 −	0.
8	1594	Dec.	15	4 18	♒ 21 0	1 16 M	♒ 21 2 14	1 19 M	2 +	3 +
9	1600	Feb.	11	17 18	♑ 16 24	3 20 B	♑ 16 20 14	3 16 B	4 −	4 −
10	1601	Apr.	29	7 25	♋ 4 23	3 10 B	♋ 4 24 3	3 8 B	1 +	2 −
11	1610	Dec.	12	3 48	♒ 17 58	1 29 M	♒ 18 1 25	1 29 M	3 +	0
12	1616	Mar.	9	16 8	♒ 15 24	non ob.	♒ 15 13 41	0 39 B	10 −	0
13	1633	Maii	16	8 52	♋ 18 15	1 48 B	♋ 18 25 37	2 50 B	6 +	2 +

Conjunctio Solis & Veneris obſervata in Anglia, anno 1639, Novemb. 24.

27. Anno Chriſti 1639, die 24. Novembris. veſperi, Vir ille peritiſſimus *Jeremias Horroxius*, ope optimi Teleſcopii, detegit ♀ intra Diſcum Solis viſibilem; tempore enim totalis immerſionis, ſeu ingreſſus ad hor. 3. 15′, deprehendit ♀ in Sole inter *Meridiem & Ortum* a centro ipſius corporis. Hæc inſignis

inſignis Obſervatio facta fuit in agro *Lancaſtrenſi*, Mill. 16. circiter à *Liverpolia*, verſus Septentrionem.

Ho.	′	Diſt. Centror.		
3	15	14′ 24″	Diamet. ♀ obſerv. ad Diamet. ☉	Long. loci gr. 21 50′.
3	35	13 30	ut 1′ 12″ ad 30′	Latit. gr. 53 22
3	45	13 0		
3	50.	Occaſus Solis apparens verus, Ho. 3. 45′		

Tempus medium totalis immerſionis contigit *Londini*, hor. 3. 19′, & tunc fuit verus locus Solis in gr. 12. 20′ 58″ ♐, Logarithmus 499286

VENERIS	S.	gr.	′	″	
Medius motus ♀	2	12	56	18	Logarithmus ♀ 485762
Aphelium	9	29	57	21	Red. 0′ 9″ add. curt. 0
Anomalia media	4	12	58	57	Scrup. proport. 1′. 27″.
Proſthaphæreſis ſubt.			36	57	Logarith- ♀ 485762
Locus ♀ à ☉ in Ellipſi.	2	12	19	21	mi ☉ 499286
Nodus Boreus	2	13	42	41	Numerus Logarithm. 886476
Anomalia latitudinis	11	28	36	40	
Reductio add.			0	9	Dabitur itaq; Paral. ♀ in tel-
Locus Heliocentricus	2	12	19	30	lure gr. 0 4′ 0″ addenda.
Locus Solis	8	12	20	58	
Anomalia Orbis	5	29	58	32	Lat. max. ♀ Geoc. gr. 9 11′
Parallaxis add.		0	4	0	Vera Latit. ♀ auſt. gr. 0 13′19″.
Locus Geocentricus	♐	12	24	58	

Differentia ♀ à ☉ erat in longit. Scrup. 4′ 0″, in latitudine verò 13′ 19″, ac proinde diſtabat *Veneris* Stella à centro Solis ad meridiem & ortum, ſcr. 14′ 0″ vix aliter quàm *Jeremias Horroxius* obſervavit.

Parallaxis Solis Horizontalis inventa eſt *TYCHONI* ſcrup. 3′ 0″, vel ſecundum recentiores, ſcrup. 2. 21″, ut veriùs etiam ab ejus obſervationibus comprobata eſt. At quoniam in tranſitu *Veneris* ſub Solis corpore ad diem 24. *Novembris* 1639, veſperi, Parallaxis ♀ à ☉ non minùs debet eſſe (ex limitatione noſtra) quàm ſcrup. 6′, aut circiter; idcircò putant aliqui, Solis Parallaxin multam minorem eſſe, nempe ſcrup. 0′ 15″ ad Summam; ſed dubia eſt *iſta Opinio* Parallaxium; nam obſervabatur hæc inſignis Conjunctio juxta Horizontem occidentalem, quando *Venus* inferiorem *Solis* marginem directè attigit, ita ut *Refractio Veneris à Sole*, iſto in poſitu, plus eam attolleret, quàm fortè deprimeret *Parallaxis*, propter *Terræ* locum, & aëris craſſitiem, quemadmodum ex diverſis iſtiuſmodi Obſervationibus pellucidè patet. *Quantitas* enim *Refractionum* non eſt ubiq; conſtans, ac eadem; nam in *locis montanis* eſt *parva*, & interdum pene *nulla*. In *maritimis* verò eſt pene *æqualis* omnibus anni temporibus. Interdum eſt *Refractio inſolens*, & *fermè prodigioſa*, quæ contingit etiam *maritimis* quandoque, ſed per accidens ob ſitum, quando ſcilicet *magna vis vaporis* ebullit ex montanis, quà iter radiationibus in locum illum maritimum, referente *Keplero*, *Epis. Aſtron.* pag. 72. Hinc liquidò conſtat, quòd Refractiones Stellarum (quas continuò obſervarunt Aſtronomi) nullâ ratione aut Obſervationum certitudine colligi poſſint, præcipuè quando in Horizonte, vel juxta eum ſitæ ſunt, quia iſtic loci, ob aëris craſſitiem, aliaque impedimenta non ſemper retinent eandem quantitatem, ſed nunc majores, nunc minores aſpectui noſtro videntur, ut Autores paſſim admonent. Inter quos, *Thomas Jacobius* Navarchus *Briſtollienſis*, dum hybernaret in Inſula quadam Americana, ſub longitudine gr. 305, & latitudine borea, gr. 52. anno Chriſti 1632, menſe Februarii, comperit ortum Solis apparentem citi-

orem ortu vero ſcrup. 20′ temporis, ſicut ipſe teſtatur Itinerarii ſui Anglicè conſcripti pag.64. unde ſequitur Refractionem Solis fuiſſe fere trium graduum. *W. Lantgravius* etiam obſervavit *Venerem* duobus gradibus ſupra Horizontem, quaſi per horæ quadrantem, & prorſus evaneſcere, *Hevelius* fol. 197. *Selenographiæ.* Simili modo, *Hollandi* navigantes per Oceanum Septentrionalem in deſertas Regiones *Nova Zembla* dictas, ad quærendum fretum, quo in Oceanum Scythicum & orientalem eſſet tranſitus, hoc referunt, cum hærentes in glacie nox oppreſſiſſet, & anno 1596, die 3. Novembris, S. N. Solem ultimo vidiſſent, ex altitudine verò Poli, quam putarunt eſſe gr. 76. jam certum haberent ex Aſtronomicis principiis, non rediturum Solem ante 11. Februarii, anni 1597. factum tamen, ut 24. Januarii, ſeptendecim diebus ante legitimum tempus, Solem rurſum viderent ſupremo marginè in ipſo Meridiei puncto, quo quidem tempore poſt paucas horas notaverunt Conjunctionem *Jovis* & *Lunæ*; relinquitur igitur ut eſſet *prodigioſa Refractio* aliquot graduum. Vide *Kepleri Paralipom.* ad *Vitellionem*, pag. 138. Nec diſſimile experimentum tradit *Maſtlinus* ſuper Eclipſi Lunæ, anno 1590. die 7. Julii; vidit enim *Tubingæ*, Solis centro ſupra Horizontem emergente, Lunam ab auſtro aliquot digitis jam deficientem, duobus pene gradibus altam; & contra Lunæ centro ſub occaſum deſcendente, notavit Solis ſupra Ortum duorum graduum altitudinem. Fuit itaq; Refractio unius ſideris major integro gradu.

Quandoquidem igitur refractiones Stellarum cum Horizonti propinquæ, interdum ſunt prodigioſæ, & rariſſimè æqualis quantitatis in pari altitudine, ſed aliquando majores, aliquando minores, ſequitur tam loca *Veneris* & *Mercurii* (qui nunquam longè evagant à Sole, & Horizonti, reſpectu Obſervationis, propinqui) non tam exquiſitè definiri quam poſſunt aliorum Planetarum loca, & ob hanc cauſam, non mirum optimas Tabulas à quibuſdam Obſervationibus hujus generis paululum diſcrepare.

Stella ♃ à ♀ ferè cooperta anno 1660.

28. Anno Chriſti 1660. die Solis, 4. *Novembris*, hor. 7. 30′ manè, vidi *Jovis* Stellam à *Venere* coopertam, ut nudo oculo apparuit, beneficio autem *Perſpicilli* conſpeximus ♃ diſtare à centro ♀ ad Septentrionem & Ortum 4′ circitèr, ſed limbus ♀ ſuperior attigit limbum ♃ inferiorem. Ita enim obſervavimus *Luffenhamiæ* in agro Rutlandienſi.

Locus Solis tunc fuit in gr. 22. 37′ 10″ ♏, Logarithmus 499434.

Locus ♃ in gr. 6. 14′ 53″ ♎, Logar. 573718. Latit. Bor. gr. 1. 12′ 12″.

VENERIS	S.	gr.	′	″	
Medius motus ♀	3	0	36	30	Logarithmus 485702
Aphelium	[illegible]	0	28	9	Reductio 1′36″ Subt. curt. 6
Anomalia media	5	0	8	21	Scrup. Proport. 16′ 48″
Proſthaphæreſis ſubt.			25	11	Logarithmi { ♀ 485696
Locus ♀ à ☉ in Ellipſi	3	0	11	19	{ ☉ 499434
Nodus Boreus	2	13	55	33	Numerus Logarithm. 986262
Anomalia latit.	0	16	15	46	Ergo dabitur Paral. Orb. ♀ in
Reductio ſubt.			1	36	Tellure gr. 46. 27′ 13″ auferenda.
Locus ♀ Heliocentric,	3	0.	9	43	
Locus Solis	7	22	37	10	
Anomalia Orbis	7	7	32	33	Lat. max. gr. 4, 0′ 51″ quâ in
Parallaxis ſubt.	1	16	27	13	ſcr. Proport. 16′ 48″ ductâ, exur-
Locus ♀ Geocentricus	♎	6	9	57	git vera lat. ♀ gr. 1. 7′ 26″ borea.

Differentia itaq; Centrorum ♃ & ♀ erat in longitudine 4′ 56″, in latitudine 4′ 46″, ac proinde intervallum 6′ 50″, ita ut limbus borealior *Veneris* diſtabat

ſtabat à limbo ♃ inferiori ſolummodo ſcrup. 2½; fuit itaq; hæc Synodus non præciſè centralis; præ autem Radiorum corruſcatione videbatur ♃ non ſolùm tangere, ſed etiam à *Venere* occultaſſe, ut ipſo oculo cernebatur. Certò enim certius eſt, quòd cùm Radii Stellarum invicem tangi videntur, vera corporum nudorum diſtantia ſemper major eſt quàm oculus intueri poterit, ut pellucidè cunctis iſtiuſmodi Obſervationibus innotuerit.

§. VIII.

Obſervationes Stellæ Mercurii.

1. ANno 21 *Dionyſii*, die 23 Menſis Scorpionis, id eſt, *Nabonaſſari* 484. menſis Thoth 19, tempore matutino, deprehenſus eſt *Mercurius* inter Stellas frontis ♏, ita ut diſtaret in conſequentia unius Lunæ intervallo à linea, quæ per primam & mediam Stellarum frontis ♏, & à prima ſtella per duas Lunas boream verſus. *Ptol. lib. 9. cap. 10. Almag.* — Obſervatio Hipparchi facta, anno Nabonaſſari, 484.

Verus locus Solis tunc fuit in gr. 19. 50′ 40″ ♏, & ejus Logar. 499243.

MERCURII	S.	gr.	′	″	
Medius motus ☿	2	9	44	46	Logarithmus ☿ 454396
Aphelium	6	17	9	0	Reduct 3′ 54″ add. Curt. 306
Anomalia media	7	22	35	46	Scrup. proport. 59′, 15″.
Proſthaphæreſis add.		22	8	15	Logarith. ☿ 454090
Locus ☿ à ☉ in Ellipſi	3	1	53	1	mi ☉ 499243
Nodus Boreus	11	22	45	25	Numerus Logarithm. 954847
Argumentum latitudinis	3	9	7	26	
Reductio add.			3	54	Ergo dab. Paral. Orbis ☿ in tel-
Locus Heliocentricus	3	1	56	55	lure, gr. 17. 48′ 42″ ſubtr.
Locus verus Solis	7	19	50	40	Lat. Max. gr. 3. 9′ 7″, de qua
Anomalia Orbis	7	12	6	15	ſumo part. proport. ſcr. proport.
Parallaxis ſubt.		17	48	42	congruentem, & naſcetur lat. ☿
Locus Geocentricus	♏	2	1	58	Geoc. gr. 3. 6′ 46″ borea.

Erat Borea frontis in gr. 1. 27′ 49″ ♏, cum latitudine borea, gr. 1. 5″; media verò erat in gr. 0. 50′ 47″ ejuſdem Signi, cum latitudine auſtrina, gr. 54′ 30″, quare *Mercurius* ſequebatur primam in fronte ♏, ſcrup. 34′ 11″, diſtabatq; ab ea ad boream verſus gr. 2. 1′ 46″.

2. Sed quoniam incerta eſt *Obſervatio* hæc *Hipparchiana*, tranſeamus nunc ad aliam, quæ facta fuit anno *Nabonaſſari* 486, die 30 *Panni*, quo tempore *Hipparchus Alexandriæ* obſervavit *Mercurii* ſtellam veſpertinam præcedere Spicam ♍, paulò plus quam tres gradus, *Ptol. lib. 9. cap. 7.* — Altera Obſervatio Hipparchi, anno Nabon. 486.

Tempus datum reſpectu *Meridiani Londinenſis* erat hor. 6, 0′ veſperi, & tunc tenuit Sol vero ſuo motu, gr. 25. 23′ 29″ ♌, Logar. 500104.

MERCURII.	S.	gr.	′	″	
Medius motus ☿.	8	9	35	56	Logarithmus ☿ 464785
Aphelium	6	17	13.	44	Reduct. 10′ 42″ ſubt. curt. 238
Anomalia media	1	22	22	12	Scrup. proport. 52′, 14″.
Æquatio ſubt		16	12	2	Logarithmi ☿ 464547
					☉ 500104
Locus in Ellipſi	7	23	23	54	
Nodus Boreus	11	22	50	1	Num. Logarithm. 964443
Argument. Latitudinis	8	0	33	53	Cum Anom. Orb. ingredior Canonem Paral. orb. ☿ in telIure,
Reductio ſubt.			10	42	inveniendo ſign. in front. & gradus in latere ſiniſtro, & ſub nu-
Locus Heliocentricus	7	23	13	14	mero Log. 964443, invenio Pa-
Locus verus Solis	4	25	23	29	ral. gr. 23. 28′ 36″ addend.
Anomalia Orbis	2	27	49	43	
Parallaxis add.		23	28	36	Lat. maxima gr. 2. 45′ 9″
Locus ☿ Geocentricus	♍	18	52	5	Lat. quæſita gr. 2 23′ 46

Obſervatio Ptolemæi, an. Chriſti 130. Erat autem *Spicâ Virginis* in gr. 22. 0′ 5″ ♍; præcedebat itaq; *MERCURIUS* ſpicam ♍, gr. 3. 8′ 0″, quod cum *Hipparchi* obſervatione ad amuſſim convenit.

3. Anno *Nabonaſſari* 877. *MESORI* die 18. quæ in 19. luceſcebat, poſt occaſum Solis; à Chriſto verò 130. Julii die 4 veſperi, *PTOLEMÆUS* obſervavit ☿ diſtare à corde ♌, gr 3. 50′, circiter in conſequentia. Tempus erat *Londini*, hor. 5. 48′, & tunc Sol tenuit gr. 10. 17′ 1″ ♋.

MERCURII	S	gr.	′	″	
Medius motus ☿	7	0	56	33	Logarithmus ☿ 466945
Aphelium	6	28	19	54	Reduct. 10′. 4″ ſubt. curt. 63
Anomalia media	0	2	36	39	Scrup. proport.
Proſthaphæreſis ſubt.		0	52	18	Logarithmi ☿ 466882
Locus in Ellipſi	7	0	4	15	☉ 500669
Nodus Boreus	0	3	15	44	Numerus Logarithm. 966213
Argument. latitudin.	6	26	48	31	
Reductio ſubt.			10	4	Reperitur itaq; Paral. orb. ☿ in
Locus Heliocentricus	6	29	54	11	Tellure gr. 27 5′ 35″ addend.
Locus ☉	3	10	17	1	
Anomalia Orbis	3	19	37	10	Lat. max. M.A. gr. 3. 20′ 36″
Parallaxis add.		27	5	35	Lat. ☿ quæſ. M.A. g. 1 30 26
Locus Geocentricus	♌	7	22	30	

Erat autem Cor Leonis in gr. 3. 39′ 52″ ♌, & proinde diſtabat ☿ à *Corde* ♌ in conſequentia, gr. 3. 42′ 44″, quæ cum obſervatione *PTOLEMÆI* benè convenit.

Obſervatio altera Ptolemæi anno 139. 4. Anno Chriſti 139. die 17 Maii, horis à meridie 17 30′ *Ptolemæus* obſervavit *Alexandria*, Lunæ centrum præcedere *Mercurii* ſtellam gr. 1. 10′, *Ptolemæus* lib. 9. cap. 10. *Almageſti*.

MER-

MERCURII	S. gr. ′ ″	
Medius motus ☿	4 26 4 28	Logarithmus ☿ 463853
Aphelium	6 28 35 2	Reductio 7′. 37″ add. curt. 32
Anomalia media	9 27 29 26	Scrup. proport. 15′, 17″.
Proſthaphæreſis add.	18 40 13	Logarith- ☿ 463821
Locus ☿ à ☉ in Ellipſi.	5 14 44 41	mi ☉ 500740
Nodus Boreus	0 3 29 58	Numerus Logar. 963081
Anomalia latit.	5 11 14 43	Ergò
Reductio add.	7 37	Dabitur Paral. Orbis ☿ in tel-
Locus Heliocentricus	5 14 52 18	lure gr. 25, 12′ 27″ add.
Locus Solis	1 24 21 31	
Anomalia Orbis	3 20 30 47	Lat. ☿ Max. gr. 3. 8′ 50″
Parallaxis add.	25 12 27	Lat. quæſ. gr. 1. 1 44
Locus ☿ Geocentricus.	♊ 19 33 58	

Erat autem tunc temporis verus centri Lunæ locus ad Eclipticam reductus in gr. 19. 4′ 15″ ♊, ſed Parallaxis Lunæ deprimebat longitudinem 50′, & Refractio eam promovebat 9′; viſus ergo Lunæ locus fuit in gr. 18. 23′ 15″ ♊, itaq; *Mercurii* Stella tenuit gr. 19. 33′ 15″ ♊; at Refractio ☿ longitudinem promovebat 4′; ergo locus ☿ viſus erat ex noſtro calculo in gr. 19. 37′ 58″ ♊, ac proinde Lunæ centrum præcedebat Mercurii ſtellam gr. 1. 14′ 43″, vix aliter quàm *Ptolemæus* in cœlo obſervavit.

Collatio Obſervationum MERCURII **à D.** Tychone *&* Longomontano, *Uraniburgi olim factarum, cum Tabulis noſtris Aſtronomicis.*

Temp. *Lond.* N.	Ann	Menſ.		Ho. ′	Loc. ☿ obſerv. S. gr. ′	Latitud obſerv. gr. ′	Locus ☿ ex Tabulis. S. gr. ′ ″	Latit. ☿ ex Tab. gr. ′ ″	Differ. Longit. Scr.	Differ. Latitud. Scr.	Obſerv. loc. ☿ Tychonianæ.
1	1585	Nov.	14	18 8	♏ 13 4	2 18 B	♏ 13 3 2	2 10 19	1 −	7 −	
2	1585	Nov.	23	18 28	♏ 25 3	1 15 B	♏ 24 59 47	1 13 15	3 −	1 −	
3	1586	Oct.	24	18 18	♎ 22 35	non ob.	♎ 22 37 59	2 13 2	3 +	0	
4	1586	Oct.	28	17 38	♎ 26 33	2 17 B	♎ 26 26 6	2 13 44	3 +	3 −	
5	1587	Jan.	9	3 58	♒ 17 48	0 1 B	♒ 17 35 20	0 0 56	12 −	0 −	
6	1589	Mar	28	7 23	♉ 7 10	2 51 B	♉ 7 11 22	2 48 5	1 +	3 −	
7	1590	Mar.	6	5 58	♉ 13 44	1 42 B	♉ 13 49 48	1 43 12	5 +	1 +	
8	1592	Feb.	3	4 48	♓ 12 20	0 47 B	♓ 12 14 3	0 50 1	5 −	3 +	
9	1593	Maii	11	8 38	♊ 23 10	2 0 B	♊ 23 31 15	1 58 47	15 +	1 −	
10	1610	Dec.	5	18 8	♐ 2 42	Non ob.	♐ 2 32 24	2 4 40	9 −	0	

In Obſervationibus annorum 1587, & 1593, quas ex *Aſtronomia Danica* deprompſimus, non mirum eſt ſi Calculus noſter aliquot ſcrupulis obſervationem abluderet, quoniam (ut monet Doctiſſimus Vir *Martinus Hortenſius*) Refractiones Siderum *TYCHO* non ſatis altè extulit, quatenus omni tempore non retinent eandem quantitatem in pari altitudine, ſed variis mutationibus, ob cauſas quaſdam Phyſicas ſubjacent, quod quidem ex Obſervationibus

nibus & experientiâ comprobatum eſt. Hinc ergo ſæpiùs accidit, quòd Obſervationes hujuſcemodi non rectè inſtituantur, ita ut nullum dubium ſit, quin locus ☿ obſervatus (quia ſemper juxta Horizontem viſus eſt) interdum à loco vero diſſentiat, quemadmodum fatetur *Longomontanus*, lib. 2. cap. 20. *Theoric.* in Obſervatione ☿ penultima, his verbis; *Non mirum eſt ſi Mercurius Horizonti vicinior 12' circitèr, provectior juſto ſecundum Longitudinem apparuerit, tum ob Refractiones fixis Sideribus deputatis majores, tum Scintillationem ſuam, quâ ſapiùs juxta Ortum & Occaſum nos fefellit Sidus hoc verſatile, quippe altiùs juſto ſe viſui ingerendo.*

Collatio Locorum ☿ obſervatorum à Gaſſendo, *cum Tabulis noſtris, ex Aſtronomia Philolaica* L. B. *deſcripta.*

Obſervationes Gaſſendi.

N	Temp. *Lond.* Ann.	Menſ.	D	Ho. '	Locus ☿ obſervatus. S. gr. ' "	Locus Solis verus. S. gr. ' "	Locus ☿ computatus. S. gr. ' "	Differentia. ' "
1	1625	Feb.	3	6 15	♓ 23 25 0	♒ 25 28 4	♓ 13 19 24	5 − 36
2	1633	Dec.	24	5 38	♒ 2 32 43	♑ 13 33 27	♒ 2 31 52	0 − 51
3	1634	Sept	23	17 8	♍ 22 59 26	♎ 10 48 30	♍ 22 58 54	0 − 32
4	1634	Oct.	2	17 23	♎ 5 6 0	♎ 19 44 20	♎ 5 7 5	1 + 5
5	1635	Jan.	6	17 38	♑ 4 25 0	♑ 27 5 30	♑ 4 28 37	3 + 37
6	1635	Jan	14	17 38	♑ 10 5 0	♒ 5 14 29	♑ 10 5 59	0 + 59
7	1635	Jul.	6	8 8	♌ 21 25 0	♋ 24 29 7	♌ 21 28 1	3 + 1

Conjunctio ⊙ & ☿ viſa Pariſiis à P. Gaſſendo, anno 1631.

22. Anno Chriſti 1631, die 28. Octobris, ſtylo veteri, Vir ille peritiſſimus, & hujus ſeculi *Tycho*, *Petrus Gaſſendus* in Solis diſco *Mercurium* deprehendit circa horam nonam antemeridianam, excedere verò ☿ è Solis diſco aſpexit hor. 10. 28'. Regio exceſſûs in circulo Diſci Solis poſt *Teleſcopium* depicti, inter meridiem & ortum, deprehenſa eſt, quocirca in Cœlo inter Septentrionem & Occaſum apparuit. Suppoſitis latitudine ☿ & loco Solis ex *Tab. Rudolphinis*, collegit *Gaſſendus* conjunctionem ⊙ & ☿ veram contigiſſe *Pariſiis* hor. 7. 58' manè, *Londini* verò hor. 7. 50', quo tempore verus Solis locus (juxta Tabulas noſtras) erat in gr. 14. 35' 50" ♏, Logar. 499510.

MERCVRII	Sig. gr. ' "	
Medius motus ☿	1 23 56 59	Logarithmus ☿ 449251
Aphelium.	8 10 58 48	Reduct. 0' 33". ſub. Curt. ſub. 0
Anomalia media	5 12 58 11	Scrup. proport. 1', 20".
Proſthaphæreſis ſubt.	9 20 48	Logarith-mi { ☿ 449251
Locus à ⊙ in Ellipſi	1 14 36 11	{ ⊙ 499510 ſub.
Nodus Boreus	1 13 19 17	Numerus Logarith. 949741
Argumentum Latitudinis	0 1 16 54	Datur itaq; Paral. Orb. ☿ in
Reductio ſubt.	0.33	tellure gr. 0. 0' 5" add.
Locus Heliocentricus	1 14 35 38	
Verus locus Solis	7 14 35 50	
Anomalia Orbis	5 29 59 48	Lat. Max. Geoc. gr. 3.10' 27".
Parallaxis add.	0 0 5	Lat. ☿ quæſ. gr. 0 4 14
Locus Geocentricus	♏ 14 35 55	

Locus

Locus *Solis* ex *Terra* tunc fuit in gr. 14. 35′ 50″ ♏, & locus ☿ Geocentricus in gr. 14. 35′ 55″ ♏, cum latitudine borea 4′ 14″; ita ut differentia longitudinum ſit tantùm 0′ 5″. Fuit itaq; *Mercurius* intra Solis diſcum, diſtabatq; à centro ad boream verſus ſolummodò 4′ 15″, quæ obſervationi egregiè conſentit.

23. Anno Chriſti 1632. Julii die 21. hor. 3. 18′ manè, Doctiſſ. *Gaſſendus* animadvertit *Pariſiis*, conjunctionem ♀ & ☿ ope Teleſcopii, videbaturq; ☿ borealior ♀ 3′ 30″, quemadmodum *Martinus Hortenſius* ſimilitèr obſervavit *Londini* erat hor. 3. 10′ manè.

Locus Solis tunc fuit in gr. 8. 6′ 4″ ♌, Logar. 500654.

MERCURII	S.	gr.	′	″	
Medius motus ☿	2	5	49	17	Logarithmus ☿ 448538
Aphelium	8	11	0	2	Red. 7′ 52″ ſub. curt. 35
Anomalia	5	24	49	15	Scrup. Proport. 20′ 5″.
Proſthaphæreſis ſubt.		2	55	51	Logarith- ☿ 448503
Locus in Ellipſi à ☉	2	2	53	26	mi ☉ 500654
Nodus Boreus	1	13	20	27	Numerus Logarithm. 947849
Argument. latit.	0	19	32	59	Ergo dabitur Paral. orb. ☿ gr.
Reductio ſubt.			7	52	13. 39′ 0″ ſubtrahenda.
Locus Heliocentricus	2	2	45	34	Ex Anom. orb. ſub num. Log. reperitur lat. ☿ maxima gr. 1.
Locus verus Solis	4	8	6	4	47′ 42″.
Anomalia Orbis	9	24	39	30	Ergo datur lat. ☿ vera Geocent.
Parallaxis ſubt.		13	39	0	gr. 0. 36′ 3″ borea.
Locus Geocent.	♋	24	27	4	

Locus verus ♀ juxta *Tabulas noſtras*, tunc erat in gr. 24. 20′ 47″ ♋, cum latitudine borea 31′ 31″; differentia igitur longitudinum fuit 6′ 17″, & proinde *Mercurius* ſuperabat *Venerem* 4′ 32″, adeo ut differentia ſit ſolummodò 1′, nullius momenti.

24. Anno Chriſti 1644, *Februarii* die 14, horâ 6. veſpertinâ, obſervavimus magnâ curâ *Laſſenbamiæ*, *Mercurium* diſtare à *Venere* Boreazephyrum verſus gr. 3. 30′, quo tempore verus locus Solis juxta Tabulas noſtras, erat in gr. 5. 54′ 46″ ♓, Logarithm. 499597.

MERCURII	S	gr.	′	″	
Medius motus ☿	2	18	41	2	
Aphelium	8	11	19	46	Logarithmus 448613
Anomalia media	6	7	21	16	Reductio 12′15″ ſub. curt. 126
Proſthaphæreſis add.		4	8	57	Scrup. proport. 37′. 54″.
Locus à ☉ in Ellipſi	2	22	49	55	Logarith- ☿ 448487
Nodus Boreus	1	13	39	1	mi ☉ 499597
					Numerus Logar. 948890
Argumentum Latitudinis	1	9	10	58	
Reductio ſubt.			12	15	Hinc dabitur Paral. orb. ☿ in
Locus Heliocentricus	2	22	37	44	tellure gr. 17. 56′58″ add.
Verus Locus Solis	11	5	54	46	
Anomalia Orbis	3	16	42	58	Lat. max. gr. 2. 13′ 23″
Parallaxis add.		17	56	58	Lat. quæſ. gr. 1. 24 15
Locus Geocentricus	♓	23	51	44	ad Boream verſus.

Venus

Venus erat in gr. 26. 10′ 43″ ♓, cum latitudine auſtrina, gr. 1. 10′ 54″, & ☿ in gr. 23. 51′ 44″ ♓, cum boreali latitudine gr. 1. 24′ 15″; differentia itaq; longitudinum fuit gr. 2. 18′ 59″, & differentia latitudinum gr. 2. 35′ 5″, ac proinde *Mercurius* diſtabat à *Venere* Boreazephyrum verſus, gr. 3. 29′, quemadmodum nos *Luffenbamiæ* conſpeximus.

Mercurius iterùm in Sole viſus, anno 1651. die 24. Oct. manè.

25. Anno Chriſti 1651. Octobris die 24. manè, *Jeremias Shakerlæus* obſervavit, *Surati Indiæ Orientalis*, illuſtrem Conjunctionem Solis & Mercurii, beneficio *Teleſcopii*, nam horâ 6. 40′ conſpexit Mercurium in circulo diſci Solis poſt Teleſcopium depictum, inter Septentrionem & Occaſum, ac proinde in Cœlo inter Meridiem & Ortum collocabatur, diſtabatq; tunc à centro Solis ſcrup. 10′; hinc colligimus veram Conjunctionem accidiſſe *LONDINI*, hor. 1. 18′ 8″ manè, ad quod momentum, ex noſtris Tabulis ſic ſe habebant *Solis* ac *Mercurii* motus.

Verus locus Solis tunc tenuit gr. 10. 26′ 25 ♏.

MERCURII	S.	gr.	′	″
Medius motus ☿	1	21	21	1
Aphelium	8	11	32	52
Anomalia media	5	9	48	9
Proſthaphæreſis ſubt.		10	56	2
Locus à ☉ in Ellipſi.	1	10	24	59
Nodus Boreus	1	13	51	17
Anomalia latit.	11	26	33	42
Reductio add.			1	30
Locus Heliocentricus	♉	10	26	29
Locus Solis	♏	10	26	29
Latitudo auſtrina.			11	25

	Ho.	′	″
Temp. med. *Lond.*	13	18	8
Æquatio Dierum add.		9	44
Temp. app. veræ ☌	13	27	52
Diff. Meridian. add.	6	0	0
Tem. ap. ver. ☌ *Surat.*	19	27	52
Mom. verò obſerv.	18	40	0

Loc. ☉ & ☿ Geocent. ♏ gr. 10. 26′ 29″.

Fuit ergo tempore Obſervationis, Stella *Mercurii* in Diſco *Solis* inter Meridiem & Ortum, quemadmodum Vir ille Doctiſſimus, præſtantiſſimusq; Aſtronomus, D. *Shakerlæus* in *India* obſervavit.

Hanc Conjunctionem prædixit idem D. *Shakerlæus* in *Colloquio*, ſeu *Diſceptatione*, *DE MERCURIO IN SOLE VIDENDO*, & poſtea ipſe tranſmigrans in *Indiam*, Conjunctionem hanc inſignem ibi videbat, eamq; amicis in *Anglia* communicavit, ut patet ex Literis ad *Chriſtophorum Townlæum*, *Henricum Osbornum Londinenſem*, aliisq; miſſis.

Conjunctio ☉ & ☿ obſervata Lond. anno 1661 die 23 Aprilis

26 In ſecundo Tomo *Ephemeridum*, pag. 227. Tranſitum *Mercurii* ſub Sole 23 Aprilis, 1661. Hor. 1. P. M. (*Coronationis die Regis* Caroli *Secundi*) prædiximus, & ſic *Londini* Vico vocato *LONG-ACRE*, à *Chriſtiano Hugenio*, *Nicolao Mercatore*, *T. Streetio*, & aliis, obſervatum erat, qui auxilio optimi Teleſcopii (rubicundus cum ſpeculis ad oculos tuendos) *Mercurium* paulò poſt primam ad ſecundam uſq; horam in Sole, veluti orbiculatam nigram maculam apparentem conſpexerunt, infra & ad dextram, modò in Cœlo erat ſupra & ad ſiniſtram à Solis centro. Paulò ante horam primam Solem invadit, ſed ad horam ferè ſecundam P. M. Doctiſs. *HUGENIUS*, diſtantiam centri ☿ à verticali circulo Solis centrum 4′ 20″ tranſeunte decrevit, & intra limbum Solis viſibilem 3′ 24″. Poſtea Cœlum erat nebuloſum.

Diameter MERCURII ad *Solis Diametrum* vix tantùm videbatur perinde ac 1. ad 100.

Tempus medium erat *Londini*, ho. 1. 45′, apparens verò hor. 1. 55′.

MER-

MERCURII	S	gr.	'	"	
Medius motus ☿	6	29	57	43	Logarithmus 465574
Aphelium	8	11	49	3	Reductio 0'22" add. curt. 0
Anomalia media	10	18	8	40	Scrup. proport. 0'. 52".
Proſthaphæreſis add.		13	19	31	Logarith- { ☿ 465574
Locus ☿ à ☉ in Ellipſi	7	13	17	14	mi { ☉ 500456
Nodus Boreus	1	14	6	31	Numerus Logar. 965119
Anomalia Latitudinis	5	29	10	4	
Reductio add.			0	22	Hinc Paral. orb. ☿ in tellure ex
Locus Heliocentricus	7	13	17	36	propria tabula reperitur gr. o.
Verus Locus Solis	1	13	30	14	10' 9". addenda.
Anomalia Orbis	5	29	47	22	Lat. max. gr. 5. 36' 40"
Parallaxis add.			10	9	Lat. quæſ. gr. o. 4 52
Locus Geocentricus	♉	13	40	23	

Diſtantia igitur ☿ à ☉ in longitudine erat 10' 9", in latitudine 4' 52", ideoque ☿ à propinquiſſimo Solis puncto viſibilis Peripheriæ quartam circitèr partem Solaris Semidiametri diſtat, & tantum à verticali circulo Solis Centrum tranſeunte; quod juxta Obſervationem propemodum conſentit. *Nunc ad Eclipſis Luminarium properamus.*

S ſ § IX.

§. IX.

OBSERVATIONES ECLIPSIUM LUNARIUM.

Erat Annus Nabonaſſari 27. dies 29 Thoth.

1. ANno primo *Mardokempadi*, die 29. Menſis *Thoth*, facta eſt Eclipſis Lunæ, in qua incipit Luna eclipſari poſt ortum ſuum *Babyloni*, unâ horâ *ἰσημερινῇ* tranſactâ, & eclipſata eſt tota, & fuit medium deliquii ante mediam noctem duabus horis & medietate, *Ptol. lib.* 4. *cap.* 6. *de Demonſtratione Diverſitatis Lunæ*, &c.

Tempus medium veræ ☍ ☉ ☽ accidit *Londini*, die 29. Menſis *Thoth*, hor. 6. 38′ 55″, quo tempore Sol juxta noſtrum calculum erat in gr. 21. 50′ 50″ ♓, & Luna in oppoſito gr. 21. 50′ 50″ ♍. Anomalia latitudinis ☽ gr. 2. 0′ 53″. Latitudo vera 10′ 31″. Sept. Aſcend. Reductio 0′ 30″ ſubtr. Tempus Reductionis 1′ 1″ addenda, &. Æquatio temporis 2′ 41″ ſubtrahenda; tempus igitur apparens veræ ☍ contingebat *Londini*, hor. 6. 37′ 15″. Erat Semidiameter Lunæ 15′ 44″, Umbræ 43′ 12″, Summa ſemidiametrorum 58′ 56″. Pars deficiens 48′ 25″. Digiti ergo Eclipt ici 18. 28′. Tempus Incidentiæ & moræ dimidiæ ſimul hor. 1. 58′. Intervallum veræ ☍ & maximæ obſcurationis ſubt. 1′ 50″. itaq; initium Eclipſis erat *Londini*, hor. 4 37′ Medium vero hor. 6. 35′.

Propter Meridianorum diſcrimen addendæ ſunt *Babyloni*, hor. 3. 10′, itaq; medium eclipſis juxta Calculum noſtrum conſpectum eſt hor. 9. 45′, hoc eſt, hor. 2 ¼ ante mediam noctem, vix alitèr quàm à *Babyloniis* conſpectum eſt.

Annus Nabon. 28.

2. Anno ſecundo *Mardokempadi*, 18 die *Thoth*, fuit Eclipſis Lunæ, cujus medium conſpectum eſt *Babyloni* in media nocte, in qua eclipſati fuerunt ex Luna à parte meridiei tres digiti. *Ptol. ibid.*

Tempus medium veræ ☍ fuit *Londini* die 18. *Thoth*, hor. 8. 58′ 39″, & erat locus Solis verus tunc temporis in gr. 10. 59′ 53″ ♓, & locus Lunæ verus in gr. 10 59′ 53″ ♍ oppoſito. Anomalia latitudinis ſig. 0. gr. 9, 55′ 0″ Latitudo ☽ vera 51′ 35″. Sept. Aſcend. Reductio 2′ 23″ ſubt. Tempus Reductionis 5′ 14″ addendum, & Æquatio temporis 5′ 55″ ſubt. Ergo dabitur tempus apparens veræ ☍ ☉ ☽ ho. 8. 57′ 58″ *Londini*. Semidiameter ☽ 15′ 23″. Umbræ terrenæ 41′ 53″. Pars deficiens 5′ 41″. Digiti Ecliptici 2. 13′. Intervallum inter medium Eclipſis & veram ☍ 9′ 52″ ſubtrahendum, itaque medium Eclipſis erat *Londini*, hor. 8. 48′ 6″. *Babyloni* verò hor. 11. 58′. Hoc eſt in media nocte, omnibus modis ut ibidem obſervatum eſt.

Annus Nabon. 28.

3. Anno ſecundo *Mardokempadi*, die 15. *Phamenoth*, Luna iterùm deficit, cœpitq; ☽ Eclipſis *Babyloni* poſt ortum ſuum. In medio Eclipſis defecerunt digiti ſex à borea. *Ptol. ibid.*

Locus Solis verus tempore veræ ☍ hor. 6. 14′ 0″, erat in gr. 1. 19′ 32″ ♍, locus ☽ verus in oppoſito, gr. 1. 19′ 32″ ♓. Anomalia latitudinis ſig. 6. gr. 9, 36′ 41″. Latitudo ☽ vera 50′ 1″. Tempus Reductionis add. 3′. 55″. Æquatio temporis ſubt. 8′ 10″. Tempus igitur apparens veræ ☍ contingebat *Londini* hor. 6. 9′ 45″; & quoniam Latitudo ☽ eſt 50′ 1″, intervallum medii deliquii & veræ ☍ dabitur 7′ 21″. ſubtr. accidit igitur medium Eclipſis anno 28. *Nabonaſſari*, die 15. menſis *Phamenoth*, hor. 6. 2′ 24″. Semidiameter ☽ 16′ 43″. umbræ, 46′ 39″, pars deficiens 13′ 21″, digiti ecliptici 5, ferè, tempus Incidentiæ, hor. 1. 6′. Initium Eclipſis *Londini*, hor. 4. 56′. id eſt, *Babyloni*, hor, 8. 6′. Ergò incipit ☽ eclipſari horâ 1. ⅓. poſt ☽ ortum, vix alitèr quàm à *Babyloniis* obſervatum eſt.

4. Anno

4. Anno quinto *Nabopolaſſaris*, qui in Sacris Literis dicitur *Nebucadnezar*, (hoc eſt, anno *Nabonaſſaris* 127, die 27 *Athyr*, in fine undecimæ horæ noctis, incipit Luna eclipſari in *Babylone*. In medio Eclipſis deficit quadrans diametri Lunæ, ab auſtrali parte. *Ptol. lib.* 5. *cap.* 14.

Eclipſis Lunæ partialis obſervata Babyloni, Anno Nabon. 127.

Tempus medium contigit *Londini* (juxta *Tabulas noſtras*) die 27. menſis *Athyr*, hor. 14. 7′ 42″, quo tempore Sol tenuit gr. 24. 42′ 5″ ♈, Luna gr. 24. 42′ 5″ ♎, Nodus ☽ Boreus, gr. 3. 53′ 0″ ♉, ergo datur Argumentum latitudinis, ſig. 5. gr. 20. 49′ 5″, Latitudo Lunæ vera 47′ 49″. Sept Deſc. Tempus reductionis 4′ 51″ ſubtr. Temporis Æquatio 7′ 20″ add. & intervallum inter veram oppoſitionem & medium Eclipſis 9′ 6″. ſimilitèr addend. ac proinde medium Eclipſis erat *Londini*, hor. 14. 19′ 17″. *Babyloni* verò, hor. 17. 29′ 17″.

Semidiameter Lunæ erat 15′ 24″, Semidiameter umbræ 42′ 6″. Summa 57′ 30″, ex quibus ablatâ Lunæ latitudine, remanet pars deficiens 9′ 41″; ergo erunt Digiti Ecliptici 3. 46′.

Scrupula incidentiæ 31′ 56″, quæ diviſa per motum horarium 27′ 26″. dant tempus incidentiæ, hor. 1. 9′ 50″, & initium eclipſis *Babyloniæ*, hor. 16. 19′ 27″, hoc eſt, circa finem horæ undecimæ, quæ incipit ho. 15. 42. exivit hor. 16 37′.

5. Anno ſeptimo *Cambyſis*, ſecundi *Perſarum* Monarchæ, id eſt, anno *Nabonaſſari* 226, die 17. *Phamenoth*, ante medietatem noctis unà horâ, deficit ☽ in *Babylone*; à parte Septentrionis, medietas diametri ejus. *Ptolemæus magnæ Conſtructionis lib.* 5. *cap.* 4.

Eclipſis Lunæ à Babyloniis obſervata, an. Nabon. 226.

Tempus medium fuit *Londini*, hor. 8. 49′ 16″, ad quod tempus Sol vero ſuo motu erat in gr. 16. 51′ 53″ ♋, verus ☽ locus in gr. 16. 51′ 53″ ♑, Argumentum latitudinis, ſig. 11. gr. 22. 59′ 7″, latitudo ☽ 36′ 31″ M. D. Horarius motus, 27′, 40″, tempus itaq; reductionis 3′ 41″ ſubt. æquat. dierum 5′ 44″ ſubt. & intervallum inter veram ☍ & maximam obſcurationem, 6′ 54″ add. ita ut medium eclipſis erat *Londini*, hor. 8, 46′ 45″. *Babyloni* verò, hor. 11. 56′ 45″.

Scrupula incidentiæ, 44′ 38″, quæ per motum horarium diviſa dabunt tempus incidentiæ, hor. 1, 36′ 47″; ergo incipiebat eclipſis *Babyloni*, hor. 10 19′ 58″, deſinebat hor. 13, 33′ 32″; ideoq; unâ horâ ante mediam noctem deficit ſemiſſis fermè diametri Lunæ à Septentrione.

6. Anno viceſimo *Darii Hyſtaſpis*, qui ſucceſſit *Cambyſi*, die 28 Epiphi, fuit Lunare Deliquium, cujus medium conſpectum eſt *Babyloni*, horis æqualibus 6, ⅓, poſt occaſum Solis, quo tempore deficit quadrans diametri ☽ ab Auſtro. Erat annus *Nabonaſſari*, 246.

Eclipſis Lunaris obſervata Babyloni, anno Nabon. 246.

Tempus medium fuit *Londini*, die 28 Epiphi, hor. 9, 6′ 42″, & verus locus Solis tunc erat in gr. 22, 13′ 5″ ♏, verus locus ☽, in gr. 22, 13′ 5″ ♉, Argumentum latitudinis, ſig. 5, gr. 21, 11′ 28″, ipſaq; latitudo 45′ 54″. Sept. deſcend. Reductio 2′ 7″ add. Horarius motus, 27′ 7″. Datur itaq; tempus Reductionis 4′ 41″, ſubt. Æquatio temporis 9′ 44″ add. & intervallum veræ ☍, & maximæ Obſcurationis 8′ 49″, ſimilitèr add. Ergo medium eclipſis cadit in horam 9, 20′ 34″, cui ſi addatur hor. 3, 10′, ob Meridianorum diſcrimen, datur medium eclipſis *Babyloni*, hor. 12, 30′ 34″.

Semidiameter ☽ 15′ 22″, umbræ, 41′ 32″; Summa Semidiametrorum 56′ 54″, tolle 45′ 54″, reſtatq; pars deficiens 11′ 0″, ac proinde digiti ecliptici 4, 17′. Obſervatio habet dig. 3.

7. Anno xxxi, *Darii Hyſtaſpis*, die 3, *Tybi*, fuit deliquium Lunare, cujus medium conſpectum eſt *Babyloni*, unà horà ante mediam noctem, deficientibus tunc ab Auſtro digitis duobus, *Ptol. lib.* 4. *cap*, 9. *Almageſti*.

Defectio Lunæ Babyloni viſa, anno Nabon. 257.

Tempus medium veri Plenilunii accidit *Londini*, hor. 7, 29′ 45″, quo tempore verus locus ☽ eſt in gr. 28, 47′ 41″ ♎, in oppoſito loco Solis in gr.

28, 47′ 41″ ♈, Anomalia latitudinis ſig. 5, gr. 19, 31′ 23″, Latitudo ☽ 54′ 29″. Sept. deſcend. Hinc dabitur Reductio 2′ 31″ add. quæ diviſa per motum horarium, 31′ 55″, efficitur tempus reductionis 4′ 44″ ſubtrahendum; ergo tempus correctum veræ ☍ erat die 3 Tyby, hor. 7, 25′ 1″, cui ſi addantur æquatio temporis, 8′ 11″, & intervallum inter veram ☍, & maximam obſcurationem 8′ 54″, prodit medium eclipſis hor. 10. 52′ 6″, hoc eſt, hor. 1, 7′ 53″ ante medietatem noctis.

Semidiameter ☽, 16, 7″, umbræ, 44′ 44″, Summa ſemidiametrorum, 60′ 51″, pars deficiens, 6′ 22″, ergo digiti ecliptici 2, 22′.

Obſervatio Deliquii Lunæ Babylone, an. Nabon. 366.

8. Anno *Nabonaſſari* 366, die 26 *Thoth*, facta eſt *Babylone* eclipſis Lunæ, *Archonte Athenis Phanoſtrato*, menſe *Poſſideone*, defecitq; Luna brevi parte diſci ſui ab ortu æſtivo in extremitate noctis, adhucq; deficiens occidit. Medium Eclipſis accidit poſt ortum Solis.

Tempus medium veri Plenilunii contigit *Londini*, hor. 16. 50′ 17″, quo quidem tempore ☉ vero motu fuit in gr. 27, 21′ 9″ ♐, ☽ gr. 27. 21′ 9″ ♊, Anomalia latitudinis, ſig 11. gr. 19 47′ 1″, ipſaq; Lunæ latitudo, 53′ 8″, Reductio 4′ 20″ ſubt. Æquatio temporis 0′ 58″ add. & Intervallum veræ ☍ & medii Eclipſis 8′ 10″ add. igitur medium Eclipſis, hor. 16. 55′ 5″, à quo ſi addatur hor. 3. 10′, ob differentiam Meridianorum, dabitur medium Eclipſis *Babyloni* hor. 20. 5′ 5″.

Semidiameter Lunæ, 16′ 30″, umbræ, 45′ 36″. Summa ſemidiametrorum, 62′ 6″, ex quibus demptâ latitudine ☽ verâ, reſtat pars deficiens, 8′ 58″, ergo digiti ecliptici 3. 15′.

Scrupula incidentiæ, 32′ 9″, quæ diviſa per motum horarium, 33′ 52″, dant tempus incidentiæ, hor. 0. 57′ 0″; igitur *Babyloni* Eclipſeos initium, hor. 19. 8′ 5″.

Obſervatio Eclipſis Lunæ Babyloni habita, anno Nabon. 366.

9. Anno *Nabonaſſari*, 366. die 24. *Phamenoth*, facta eſt *Babylone* Eclipſis ☽ (*Phanoſtrato Athenis Archonte*, menſe *Scirrophorione*) cujus initium fuit hor. 7. 36′, medium, hor. 9 6′.

Tempus medium veræ ☍ contigit *Londini*, hor. 6. 6′ 46″. Erat tunc temporis verus locus Solis in gr. 20. 48′ 22″ ♊, verus locus Lunæ, in Orbita in gr. 20. 48′ 22″ ♐, Reductio, 1′ 47″ add. Locus ☽ in ecliptica, in gr. 20. 50′ 9″ ♐, horarius motus, 27′ 40″; ergo datur tempus exaratum veræ ☍, hor. 6. 2′ 54″.

Æquatio temporis 3′ 16″ add. Intervallum inter veram ☍, & medium Eclipſis, 7′ 13″. ſimiliter addendum, (tempus igitur maximæ obſcurationis erat Meridiano *Londinenſi*) hor. 6. 13′ 23″, Meridiano autem *Babylonienſi*, hor. 9. 23′ 23″. Digiti ecliptici, 7, 30′.

Scrupula incidentiæ, 43′ 5″ per motum horarium diviſa, dant tempus incidentiæ, hor. 1. 33′ 26″, ergo initium Eclipſeos *Babyloni*, hor. 7. 49′ 57″

Deliquium Lunare Babyloni conſpectum, anno Nabon. 367.

10. Anno *Nabonaſſari*, 367. (*Evandro Athenis Archonte*, *Poſideone* primo) ſecundum *Ægyptios*, *Thoth* die xvi. luceſcente in xvii. deficit Luna horis 4, incipiens ab ortu æſtivo. Initium Eclipſis contigit *Babyloni*, hor. 9. 1′, medium hor. 11. 1′.

Tempus apparens veri Plenilunii accidit *Londini*, hor. 8. 8′ 30″, quo tempore verus ☉ locus fuit in gr. 16. 32′ 1″ ♐, verus ☽ locus in oppoſito, gr. 16. 32′ 1″ ♊, Argumentum latitudinis, ſig 11. gr. 27. 44′ 41″, ipſaq; ☽ latitudo 11′ 47″ M. D. intervallum inter veram ☍, & medium Eclipſeos, 1′ 41″ add. ergo erat medium Eclipſis *Londini*, hor. 8. 10′ 11″. *Babyloni* autem hor. 11. 20′ 11″.

Semidiameter ☽, 16′ 45″, umbræ, 46′ 34″, Summa ſemidiametrorum 63′ 19″, & ſublatâ hinc latitudine, 11′ 47″, reſtat pars deficiens, 51′ 32″, digiti 18. 30′, ita ut Eclipſis erat totalis, quemadmodum habet Obſervatio.

Scrupula

Scrupula incidentiæ, 63′ 12″; tempus incidentiæ, hor. 1. 44′ 47″, ac proinde Eclipſeos initium *Babyloni*, hor. 9. 35′ 24″.

11. Anno 54 *Periodi* 2. *Calippi*, die 16. *Meſori*, factum eſt ☽ Deliquium, cujus initium erat 30′ ante ortum, medium ab *Hipparcho Alexandriæ* ani madverſum eſt horis à Meridie 7. 0′. Erat annus *Nabonaſſari* 547.

Eclipſis Lunaris Alexandriæ obſervata, an. Nabon. 547.

Tempus medium veri Plenilunii fuit hor. 5. 4′ 1″, *Londini*, quo quidem tempore Sol tenuit gr. 26. 14′ 10″ ♍, Lunæ, gr. 26, 14′ 10″ ♓. Anomalia latitudinis, ſig. 5. gr. 24. 4′ 0″, latitudo ☽, 30′ 58″, Sept Deſc. Reductio 1′ 26″ add. Tempus Reductionis ☽ 2′ 58″ ſubt. Æquatio temporis, 1′ 14″ ſubt. & intervallum veræ ☍, & maximæ obſcurationis, 5′ 36″ ad. dabitur itaq. tempus maximæ obſcurationis *Londini*, hor 5. 5′ 25″, à quo tolle hor. 1. 48′, ob Meridianorum diſcrimen, & relinquitur medium Eclipſeos *Alexandriæ*, hor. 7. 25′ 25″. Obſervatio exhibet hor. 7. 0″.

Semidiameter ☽, 15′ 40″, umbræ 42′ 45″, Summa ſemidiametrorum, 58′ 25″, pars deficiens, 27′ 27″, Digiti ecliptici, 10′ 41″, Scrupula incidentiæ, 49′ 32″, motus horarius, 28′ 57″, Tempus incidentiæ, hor. 1. 42′ 39″, ac proinde initium Eclipſeos, hor. 5, 42′ 46″ *Alexandria*.

12. Anno 55. *Periodi* 2. *Calippi*, die 9. *Mechir*, fuit Eclipſis Lunæ totalis, cujus initium *Hipparchus* obſervavit *Alexandriæ*, horis à Meridie 11. 20′, medium, hor. 13. 20′. Erat annus *Nabonaſſari*, 548.

Eclipſis Lunæ Alexandriæ Ægypti obſervata, anno Nabon. 548.

Tempus medium veri Plenilunii contigit *Londini*, die 9. *Mechir*, hor. 10. 30′ 52″, ad quod quidem tempus ☉ vero ſuo motu tenuit gr. 25. 43′ 42″ ♓, ☽ gr. 25, 43′ 42″ ♍, Anomalia latitudinis, ſig. 0, gr. 2. 59′ 52″, Reductio orbitæ ☽ 0′ 45″ ſubt. quæ per motum horarium diviſa, dant tempus reductionis ☽ 1′ 23″ addendum, ideoq; tempus correctum veræ ☍ fuit hor. 10. 32′ 15″, ex quibus ſi auferatur æquatio temporis 1′ 25″, relinquit tempus apparens veri Plenilunii, hor. 10, 30′ 50″: Præterea ex latitudine ☽ 15′ 40″, Sept. Aſcend. elicitur intervallum veræ ☍, & maximæ obſcurationis, 1′ 21″, quo itidem diviſo per motum horarium, dabitur intervallum temporis, 2′ 29″ ſubtr. ac proinde medium Eclipſis *Alexandriæ*, hor 12, 48′ 21″.

Semidiameter Lunæ, 16′ 14″, umbræ, 45′ 0″, Summa ſemidiametrorum, 61′ 14″, ex quibus ablatâ ☽ latitudine, 15′ 40″. remanet pars deficiens, 45′ 34″, ergo digiti ecliptici erant 16, 50′.

Scrupula incidentiæ 59′ 12″, tempus incidentiæ, hor. 1. 49′ 17″; fuit itaque juxta Tabulas noſtras, initium Eclipſeos *Alexandriæ*, hor. 10, 59′ 4″.

13. Anno 55, *Periodi* 2. *Calippicæ*, die 5 *Meſori*, factum eſt Lunæ Deliquium, cujus medium conſpectum eſt *Alexandriæ*, horis à meridie, 14. 36′, & eclipſata fuit Luna tota.

Eclipſis Lunæ totalis Alexandriæ obſervata, an. Nabon. 548.

Tempus medium veræ ☍ accidit *Londini*, hor. 12. 37′ 47″, quo tempore Sol erat in gr. 15, 21′ 31″ ♍, Luna in gr. 15, 21′ 31″ ♓, Anomalia latitudinis, ſig. 6. gr. 1, 57′ 4″, ipſaq; Lunæ latitudo 10′ 12″ merid. Aſcend Reductio 0′ 29″ ſubt. Tempus reductionis ☽ 0′ 53″ add. Æquatio temporis, 4′ 41″ ſubt. Intervallum inter veram ☍, & medium Eclipſis 1′ 38″ ſubt. Ergo medium Eclipſis contigit *Londini*, hor. 12 32′ 21″, *Alexandriæ* autem, hor. 14. 52′ 21″.

Semidiameter Lunæ, 16′ 15″. Umbræ 44′ 53″. Semidiametrorum ſumma 61′ 8″, detractâ hinc latitudine ☽, reſtat pars deficiens 50′ 56″, digiti ecliptici, 18. 48′.

Obſervatio Eclipſis Lunæ habita, anno Nabon. 574.

14. Anno ſeptimo *Ptolemai Philometoris Ægyptiorum* Regis, die 27. *Phamenoth*, erat Defectus lunaris, à principio horæ noctis 8, uſq; ad finem horæ 10, fuitq; medium horis à meridie, 14. 20. deficientibus tunc à parte Septentrionis digitis ſeptem, *Ptol. lib.* 6. *cap.* 5.

Tempus

Tempus medium fuit *Londini*, hor 11. 23′ 56″, Sol in gr. 5. 57′ 13″ ♉, Luna in gr. 5. 57′ 13″ ♏, cum latitudine 43′ 18″ Merid. aſcend.

Tempus apparens veri Plenilunii, hor. 11. 36′ 37″, ex quibus ſi auferatur intervallum inter veram ☍, & medium Eclipſis 6′ 21″. fiet medium Eclipſis, hor 11. 30′ 16″, *Alexandriæ* autem, hor. 13. 50′ 16″.

Semidiameter ☽ 16′ 43″, umbræ, 46′ 53″, Summa ſemidiametrorum 63′ 36″, demptâq; hinc latitudine, reſtat pars deficiens, 20′ 18″, ergo digiti, 7. 18′.

Scrupula incidentiæ, 46′ 35″, Horarius motus ☽ à ☉ verus, 35′ 33″, Tempus incidentiæ, hor. 1. 18′ 37″, ac proinde Initium Eclipſeos *Alexandriæ*, hor. 12. 31′ 39″, finis, hor. 15. 8′ 53″.

Eclipſis Lunæ Rhodi obſervata, anno Nabon. 607.

15. Anno triceſimo ſeptimo tertiæ *Periodi Calippicæ*, die 2. *Tybi*, factum eſt Lunæ deliquium, cujus medium in *Rhodo* animadverſum eſt horâ 1. 50′ ante medietatem noctis, fuitq; tunc ☽ obtenebrata à parte Meridiei, digitis tribus. *Ptolemeus. lib. 6. cap. 5.*

Tempus medium veri Plenilunii fuit *Londini*, hor. 7. 36′ 49″, quo tempore verus Solis locus eſt in gr. 4. 53′ 5″ ♒; verus Lunæ locus in oppoſito, gr. 4. 53′ 5″ ♌, Motus verus latitudinis à nodo boreo, gr. 10. 34′ 30″, Latitudo ☽ 55′ 0″, S. A. Reductio ☽, 2′ 32″ ſubt. Tempus Reductionis, 4′ 16″, add. ita ut tempus correctum veri Plenilunii erat hor. 7. 41′ 5″, Æquatio temporis, 9′ 27″ ſubt. Tempus apparens veri Plenilunii, hor. 7. 31′ 38″, Intervallum inter verum Plenilunium & medium Eclipſis, 8′ 3″ ſubt. ac proinde medium Eclipſeos *Londini*, hor. 7. 23′ 35″.

Propter differentiam Meridianorum addendæ ſunt *Rhodi*, hor. 2. 10′; medium igitur Eclipſeos contigit *Rhodi* (juxta *Tabulas noſtras*) hor. 9. 33′ 35″, id eſt, hor. 2. 26′ 25″ ante mediam noctem.

Semidiameter Lunæ, 16′ 45″, umbræ, 46′ 40″, Semidiametrorum ſumma, 63′ 25″, hinc ablatâ latitudine, reſtat pars deficiens, 8′ 25″; ergo erant digiti ecliptici 3 1′; ut habet Obſervatio.

Obſcuratio Lunæ Alexandriæ habita, anno Nabon. 872. Erat an. Chriſti 125.

16. Anno Imperatoris *Adriani* nono, die 17 *Pachon*, fuit Eclipſis ☽, cujus medium obſervatum eſt *Alexandriæ*, horis à meridie, 8. 28′. defecitq; ſexta pars diametri ☽ ab Auſtro, *Ptol. Lib. 4. Cap. 9.*

Tempus medium veri Plenilunii contigit *Londini*, anno *Nabonaſſari* 872. die 17 *Pachon*, hor. 6. 8′ 1″, quo tempore ☉ erat in gr. 14. 30′ 36″ ♈, ☽ gr. 14. 30′ 36″ ♎, anomalia latitudinis, ſig. 5. gr. 19. 25′ 48″, Latitudo ☽ vera, S. D 54′ 58″, Reductio 2′ 32″ add. Horarius motus ☽ à ☉, 32′ 23″, Tempus Reductionis, 4′ 42″ ſubt. Æquatio temporis, 4′ 38″ add. Dabitur itaq; tempus apparens veri Plenilunii, hor. 6, 7′ 57″. Jam ſi addatur intervallum inter medium Eclipſis & veram ☍, 8′ 52″, habebimus maximam obſcurationem, hor. 16. 19′ 49″ *Londini*; *Alexandriæ* verò, hor. 8. 36′ 49″.

Semidiameter ☽ vera, 16′ 12″, Semidiameter umbræ Terræ, 44′ 59″. Aggregatum Semidiametrorum, 61′ 11″, pars deficiens, 6′ 13″. Hinc Digiti Ecliptici proveniunt 2′ 18″, vix aliter quam habet Obſervatio.

Totalis Eclipſis Lunæ Alexand. obſer. anno Chriſti 133. Nabon. 880.

17. Anno 17. Imperatoris *Adriani*, die 20 *Payni*, fuit eclipſis ☽ totalis, cujus medium *Ptolemæus* obſervavit *Alexandriæ*, hor. 11. 15. *Ptol. lib. 4. cap. 5.*

Tempus medium veræ ☍ ☉ ☽ incidit in annum *Nabonaſſari*, 880, diem 20 *Payni*, hor. 8. 34′ 48″, Tempus autem apparens, in diem 20. hor. 8. 42′ 32″ quo quidem tempore ☉ vero ſuo motu invenitur in gr. 14. 25′ 52″ ♉, Luna in gr. 14. 25′ 52″ ♏, Anomalia latitudinis, ſig. 11. gr. 25, 43′ 55″, ipſaq; ☽ latitudo, M. D. 22′ 19″, Intervallum inter veram ☍ ☉ ☽ & maximam obſcurationem, 4′ 8″ add. ita ut medium Eclipſeos contingat *Londini*, hor. 8. 46′ 40″.

Propter

Propter differentiam Meridianorum addendæ ſunt horæ 2. 20′, quare medium Eclipſis viſum eſt *Alexandriæ*, hor. 11 6′ 40″.

Semidiameter Lunæ, 15′ 33″, umbræ, 42′ 40″. Aggregatum SS. d d. 58′ 13″, demptâq; latitudine ☽, reſtat pars deficiens 35′ 54″, ergo digiti eclipſici erant 13 51′.

18. Anno xix *Adriani*, die 2 *Choac*, accidit Lunare Deliquium, cujus medium à *Ptolemæo Alexandriæ* obſervatum eſt horâ unâ ante medietatem noctis, ad quod quidem tempus defecit Luna digitos 9 à borea.

Lunare Deliquium partiale Alexandriæ conſpectum, an. Chr. 134.

Tempus medium veræ ☍ ☉ ☽ contigit *Londini*, anno *Nabonaſſari* 882. die 2 *Choac*, hor. 8. 44′ 10″, quo tempore inveniuntur verus locus ☉ in gr. 26. 28′ 16″ ♎, verus locus ☽ in gr. 26. 28′ 16″ ♈, coæquatus motus latitudinis ☽, ſig. 6 gr. 5, 56′ 39″, latitudo ☽ vera, 31′ 2″, M.A. Reductio orbitæ ☽ ad Eclipticam, 1′ 26″, quibus diviſis per motum ☽ horarium, 29′ 18″, colligitur tempus reductionis, 2′ 56″ add. Tempus igitur exaratum veri Plenilunii fuit hor. 8, 47′ 6″, cui ſi addatur Æquatio temporis 7′ 43″, fiet tempus apparens veri Plenilunii, hor. 8. 54′ 49″. Intervallum inter verum Plenilunium & medium Eclipſis eſt 5′ 32″ ſubt. ac proinde medium Eclipſis erat *Londini*, hor. 8. 49′ 17″, id eſt, *Alexandriæ*, hor. 11. 9′ 17″.

Semidiameter ☽ 15′ 43″, Semidiameter umbræ Terræ, 42′ 52″, Summa, 58′ 35″. Pars deficiens reſpectu totius diametri Lunaris, 27′ 33″, hinc Digiti Ecliptici proveniunt 10′ 31″.

19. Anno *Adriani* 20, die 19 *Pharmuthi*, fuit Eclipſis *Lunæ*, cujus medium *Ptolemæus* animadvertit *Alexandriæ*, horis à Meridie 16′ 0″, defecitq; tunc medietas Diametri Lunæ à parte Septentrionis, *Ptol. lib.* 4. *cap.* 6.

Eclipſis Lunaris partialis Alexandriæ obſervata, anno Chriſti 136.

Tempus medium veræ ☍ ☉ ☽ accidit anno *Nabonaſſari*, 883, die 19 *Pharmuthi*, hor. 10, 53′ 45″, Tempus verò apparens incidit in hor. 12, 45′ 13″, quo tempore invenitur locus ☉ in gr. 14, 54′ 30″ ♓, locus ☽ in gr. 14, 54′ 30″ ♍, Argumentum latitudinis ☽, ſig. 11. gr. 21, 3′ 28″, Latitudo ☽ vera, 46′ 35″ M.D. Intervallum inter verum Plenilunium & medium Eclipſis, 6′ 59″ addendum, ita ut medium Eclipſeos ſit hor. 12, 52′ 12″.

Propter Meridianorum diſcrimen addendæ ſunt *Alexandriæ*, hor. 2, 20′; Itaq; medium Eclipſis *Alexandriæ* videri debuit, juxta calculum noſtrum, hor. 15, 12′ 12″.

Semidiameter Lunæ, 16′ 38″, Semidiameter umbræ Terræ, 46′ 21″, Semidiametrorum Summa, 6:′ 59″, Pars deficiens, 16′ 24″, quibus diviſis per motum horarium, 34′ 46″, proveniunt Digiti Ecliptici, 5. 55′, id eſt, Dig. 6. ferè, quemadmodum *Ptolemæus Alexandriæ* conſpexit.

20. Anno à morte *Alexandri*, 1206, die 23 Menſis *Kemir*, vel *Julii*, fuit Eclipſis ☽, cujus medium *Albategnius* conſpexit *Aractæ Syriæ*, horis à meridie 8, paulò plus, defecitq; à Borea plus quàm dextans diametri ☽, *Albategnius*, *cap.* 30.

Obſervatio Deliquii Lunæ Aractæ Syriæ, a no Chriſti, 883.

Tempus medium veri Plenilunii accidit anno Chriſti 883, die 23 *Julii*, hor. 4. 44′ 35″, quo tempore Sol vero ſuo motu fuit in gr. 4 2′ 13″ ♌, Luna in oppoſito gr. 4 2′ 13″ ♒, Argumentum latitudinis, ſig. 6. gr. 5 49′ 21″, Latitudo Lunæ vera 30′ 24″, M. A. Horarius motus ☽ à ☉ 32′ 52″, Tempus reductionis Orbitæ ☽ 2′ 33 ad″. Æquatio temporis 9′ 21″ ſubt. & Intervallum veræ ☍, & maximæ obſcurationis 4′ 50″ etiam ſubtr. Itaq; habebimus medium Eclipſeos *Londini*, hor. 4 32′ 57″.

Propter differentiam Meridianorum addendæ ſunt horæ 3 20′; contigit ergo medium Eclipſeos *Aractæ* (juxta *Tabulas noſtras*) hor. 7 52′ 57″.

Semidiameter ☽ 16′ 18″, Semidiameter Umbræ 45′ 19″, Summa Semid. 61′ 37″, detractâq; hinc latitudine, relinquitur pars deficiens 31′ 13″, ergo proveniunt Digiti Ecliptici 11 29′ 27″.

21. Anno

Eclipſis Lunæ obſervata Antiochiæ anno Chriſti, 901.

21. Anno ab obitu *Alexandri*, 1224, die 2 Menſis *Ab*, vel *Auguſti*, fuit Deliquium Lunare, cujus medium *Albategnius* animadvertit *Antiochiæ*, hor. 15 20′, defecitq; tunc tota Luna propemodum. *Albategnius*, *cap*. 30.

Medium tempus veri Plenilunii fuit *Londini*, hor. 12 9′ 20″. Ad hoc tempus invenitur verus locus ☉ in gr. 14 34′ 12″ ♌, verus locus ☽ in gr. 14 34′ 12″ ♒, Argumentum latitudinis, ſig. 6, gr. 5 4′ 51″, Latitudo ☽ vera 26′ 32″, M. A. Reductio Orbitæ ☽ 1′ 14″ ſubtr. Horarius motus ☽ à ☉ verus, 32′ 37″, Tempus Reductionis ☽ 2′ 16″ add. Æquatio temporis 9′ 56″ ſubt. & Intervallum veri Plenilunii & maximæ obſcurationis 4′ 15″ ſubt. itaq; tempus medii Eclipſis erat *Londini*, hor. 11 57′ 25″.

Propter differentiam Meridianorum, addendæ ſunt horæ 3 15′; medium igitur Eclipſeos contigit *Antiochiæ*, hor. 15 12′ 25″.

Semidiameter ☽ 16′ 15″, umbræ 45′ 10″, Semidiametrorum ſumma 61′ 25″, Pars deficiens 34′ 53″; ergo emergunt Digiti Ecliptici 12 51′.

Eclipſis Lunæ totalis Mellico Auſtriæ obſervata an. Chr. 1457.

22. Anno Chriſti 1457, die 3 *Septembris*, fuit Eclipſis ☽ totalis, cujus medium *Georgius Purbachius*, & *Joannes Regiomontanus* obſervârunt in *Mellico Auſtriæ*, horis à meridie 11 6′, *Joannes Regiomontanus in Torqueto.*

Tempus medium veri Plenilunii accidit die 3 *Septembris*, hor. 10 2′ 9″, quo tempore ☉ tenuit gr. 19 46′ 38″ ♍, ☽ gr. 19 46′ 38″ ♓, Argumentum latitudinis, ſig. 5. gr. 26 2′ 55″, Latitudo ☽ vera 20′ 39″, Sept. Deſcend. Reductio Orbitæ ☽ 0′ 58″ add. Horarius motus ☽ à ☉ 35′ 36″, Tempus Reductionis ☽ 1′ 38″ ſubt Æquatio temporis 3′ 20″ ſubt. & Intervallum inter veram ☍ ☉ ☽, & maximam Obſcurationem 3′ 2″ add. ac proinde medium Eclipſis dabitur *Londini*, hor 10 0′ 13″.

Propter differentiam Meridianorum addenda eſt hora 1 4′, quare medium Eclipſeos conſpectum erat in *Mellico Auſtriæ*; hor. 11 4′ 13″, quemadmodum ibi obſervatum fuit.

Semidiameter ☽ 16′ 44″, Semidiameter Umbræ 46′ 49″, Summa Semidiametrorum 63′ 33″, Pars deficiens 42′ 54″; ergo Digiti Ecliptici colliguntur 15 25′.

Obſervatio deliquii lunaris, anno Chr. 1462, à Joan. Regiomont.

23. Anno Chriſti 1462, die undecimo *Junii*, fuit Lunæ defectus, cujus medium *Joannes Regiomontanus* conſpexit *Viterbii* in *Italia*, horis à meridie 14 48′, defeceruntq; tunc à Borea Digiti 7, *Regiomontanus in Torqueto.*

Tempus medium veræ ☍ ☉. ☽ contigit *Londini*, die 11 *Junii*, hor. 13, 52′ 0″, quando ☉ vero ſuo motu erat in gr. 29 4′ 35″ ♊, ☽ in gr. 29 4′ 35″ ♐, Anomalia latitudinis, ſig. 6, gr. 7. 36′ 14″, Latitudo ☽ vera 39′ 39″, Auſtrina creſcens, Horarius motus ☽ à ☉ verus 30′ 55″, Tempus reductionis ☽ ad Eclipticam 3′ 20″ addendum, æquatio temporis 0′ 20″ add. Intervallum inter veram ☍, & maximam obſcurationem 6′ 40″ ſubt. ita ut maxima Obſcuratio fuit *Londini*, hor. 13 49′ 0″.

Sed ob Meridianorum diſcrimen addenda ſunt Scrupula horæ 50′, ac proinde medium Eclipſeos animadverſum eſt *Viterbii*, hor. 14. 39′ 0″.

Semidiameter Lunæ, 15′ 58″. Umbræ Terræ 44′ 11″. Aggregatum Semidiametrorum 60′ 9″, pars deficiens 20′ 30″; ergo erant digiti ecliptici 7 42′ 14″.

Defectus Lunæ conſpectus Romæ, anno Chriſti 1500.

24. Anno Chriſti 1500. die 5 *Novembris*, fuit Deliquium Lunare, cujus medium *Nicolaus Copernicus* obſervavit *Romæ* duabus horis à media nocte, defeceruntq; à Borea Digiti decem, *Nicolaus Copernicus*, *Lib. Revolut.* iv. *cap*. xiv.

Tempus medium veri Plenilunii erat *Londini*, die 5 *Novembris*, hor. 12 39′ 14″, dum Sol vero motu ſuo eſſet in gr. 23. 12′ 1″ ♏, Luna in gr. 23 12′ 1″ ♉. Et erat Anomalia latitudinis, ſig. 5. gr. 24 31′ 35″, latitudo ☽ vera 28′ 35″, Sept. Deſc. Horarius motus 29′ 18″, Reductio Orbitæ ☽ 1′ 20″

20'' add. Tempus reductionis ☽ 2' 44'' ſubt. Æquatio dierum 9' 9'' add. & intervallum inter veram ☍, & maximam obſcurationem, 5' 7' add. Itaq; eligitur medium Eclipſeos hor. 12 51' 16'' *Londini.*

Propter differentiam Meridianorum addenda ſunt hor. Scrupula 53' quamobrem medium Eclipſeos erat *Romæ* hor. 13. 44' 10''. hoc eſt, paulò ante mediam noctem.

Semidiameter Lunæ, 15' 43'', umbræ, 42' 52''. Summa Semidiametrorum 58' 35'', pars deficiens, 30'0''; ergo digiti ecliptici 11 27'.

25. Anno Chriſti 1509. die 2 *Junii*, fuit Eclipſis ☽, cujus medium *Nicolaus Copernicus* animadvertit *Cracoviæ*, horis æquinoctialibus 11, & tribus quintis unius horæ, in qua defecerunt Digiti proximè octo lunaris diametri à parte auſtrina circa ſcandentem ſectionem, *Copernicus, lib.* 4. *cap.* 13.

Eclipſis Lunaris obſervata Cracoviæ, anno Chriſti 1509.

Tempus medium veræ ☍ ☉ ☽ contigit die 2 *Junii*, hor. 10. 14' 54'', dum ☉ eſſet in gr. 20. 58' 5'' ♊, ☽ in gr. 20 58' 5'' ♐, & erat argumentum latitudinis, ſig. 0. gr. 8 5' 29'', Latitudo ☽ vera, 42' 10'', S. A. Horarius motus ☽ à ☉, 35' 25'', Reductio Orbitæ ☽ 1' 57'' ſubt. Tempus Reductionis ☽, 3' 18'' add. Æquatio dierum, 3' 11'' add. & intervallum inter veram ☍, & maximam obſcurationem, 6' 12'' ſub. ac proinde medium eclipſeos fuit *Londini*, hor. 10. 15' 11''. Sed *Cracoviæ*, hor. 11 38' 11''.

Semidiameter ☽ 16' 42'' umbræ 46' 50''. Summa Semidiametrorum 53' 32'', hinc demptâ latitudine ☽, relinquitur pars deficiens 21' 22'', erant itaq; Digiti Ecliptici 7 41' 40''.

26. Anno Chriſti 1511, die 6 *Octobris*, fuit Lunare Deliquium totale, cœpitq; ☽ deficere unâ horâ & octavâ parte horæ ante medium noctis ex horis æqualibus, & reſtituta eſt in integrum duabus horis, & tertia poſt medium noctis, ſitq; medium eclipſis, erat hora dimidia cum duodecima parte horæ poſt medium noctis, *Copernicus, Lib. Revolut.* 4. *cap.* 5. *fol.* 107

Eclipſis Lunæ obſerv. Frueburgi Pruſſiæ anno 1511.

Tempus medium veri Plenilunii erat *Londini*, hor. 10. 40' 24'' quo tempore dabitur vera Solis longitudo in gr. 22. 17' 3'' ♎; vera Lunæ longitudo in gr. 22. 17' 3'' ♈, Argumentum latitudinis Sig. 5. gr. 24. 44' 20'', Latitudo ☽ vera 27' 29'', S. D. Reductio Orbitæ ☽, 1' 16'' add. Horarius motus ☽ à ☉ 35' 39'', Tempus Reductionis ☽, 2' 8'', ſubt. Æquatio temporis, 6' 45'' add. & Intervallum inter verum Plenilunium & medium Eclipſis, 3' 59'' add. ac proinde medium Eclipſis erat *Londini*, hor. 10 .49' 0''.

Propter diverſitatem Meridianorum, addenda eſt hora 1 44', quare medium Eclipſis erat *Frueburgi*, hor. 12 33' 0''. Obſervatio habet hor. 12 35'.

Semidiameter ☽ 16' 44'', umbræ, 16' 43'', Aggregatum ſemidiametrorum 63' 26'', detractâq; hinc latitudine ☽, reſtat pars deficien , 35' 57'', ergo erant digiti ecliptici 12 55'.

Scrupula incidentiæ, & moræ dimidiæ ſimul inveniuntur 37' 10'', quæ diviſa per motum Horarium ☽ à ☉, oſtendunt Tempus incidentiæ, hor. 1. 30' 12'', quare Luna cœpit *Frueburgi Pruſſiæ* deficere, hor. 10. 56' 48'', exhibet verò Obſervatio hor. 10. 53'.

27. Anno Chriſti 1522, die 5. *Septembris*, fuit Lunare deliquium, cujus initium *Copernicus* animadvertit *Frueburgi*, duabus quintis horæ æqualis, ante medium noctis, ſed ejus medium unâ horâ cum triente poſt mediam noctem, defecitq; tunc totum Lunare corpus, *Copernicus, Lib.* 4. *Cap.* 5. *Fol.* 107.

Eclipſis Lunæ totalis Frueburgi obſerv. anno 1522.

Tempus med. veræ ☍ ☉ ☽ accidit die 5 *Sept.* h. 11. 38' 12'', dum ☉ eſſet in gr. 22 2' 41'' ♍, Luna in gr. 22. 2' 41'' ♓, Argumentum latitudinis, ſig. 11 ſ. 25, 37' 57'', latitudo ☽ vera 22' 49'' M. D. Tempus apparens veræ ☍ hor. 11 33' 27'', Intervallum inter veram ☍ & medium Eclipſis 3' 58'' ad. ſicq; me-

dium Eclipſeos contigit *Londini*, hor. 11 37′ 25″.

Semidiameter Lunæ 15′ 49″, umbræ 43′ 30″. Summa Semidiametrorum 59′ 19″, pars deficiens 36′ 30″; hinc Digiti Ecliptici colliguntur 13.° 50′. Itaq; tota Luna deficit.

Scrupula incidentiæ & moræ dimidiæ ſimul ſunt 54′ 45″, quæ diviſa per motum horarium 29 58′, exhibent tempus incidentiæ & moræ dimidiæ ſimul hor. 1. 49′ 31″.

Propter diverſitatem Meridianorum addenda eſt hora 1 44′. Cœpit itaq; Luna *Frueburgi Pruſſiæ* deficere, horis à meridie 11 31′ 54″. Obſervatio autem habet horas 11 36′.

Defectus Lunæ totalis Frueburg. obſervatus, anno Christi 1523.

28. Anno Chriſti 1523. die 25 *Auguſti*, fuit Eclipſis Lunæ totalis, quæ cœpit horis tribus minùs quintâ parte horæ poſt mediam noctem, & medium tempus omninò etiam deficientis, erant 4. horæ medietas minùs duodecimâ parte horæ poſt mediam noctem, *Copernicus*, *ibid*.

Tempus medium veræ ☍ fuit *Londini*, hor. 14. 46′ 8″, ad quod quidem tempus reperitur verus Solis locus in gr. 11. 12′ 40″ ♍, & verus locus ☽ in gr. 11. 12′ 40″ ♓, verus motus latitudinis, ſig. 0 gr. 3 33′ 7″, ipſaq; ☽ latitudo ab Ecliptica 18′ 34″ S. A. Reductio Orbitæ ☽ 0′ 53″ ſubt. tempus reductionis ☽ 1′ 56″ add. æquat. temporis 5′ 51″ ſubt. & intervallum inter veram ☍ & maximam obſcurationem, 3′ 34″ ſubt. quare medium eclipſis accidit *Londini*, hor. 14, 38′ 39″. *Frueburgi* autem hor. 16 22′ 39″. Obſervatio exhibet horas 16 25′.

Semidiameter ☽, 15′ 25″, Semidiameter umbræ Terræ 41′ 59″, Summa ſemidiametrorum 57′ 24″, pars deficiens, 38′ 50″: hinc colliguntur Digiti ecliptici, 15 6′ 48″, defecit igitur totum Lunare corpus.

Scrupula incidentiæ & moræ dimidiæ ſimul 54′ 19″, motus horarius Lunæ à Sole 27′ 26″, ergo Tempus incidentiæ & moræ dimidiæ ſimul hor. 1 58′ 48″, & principium Eclipſeos *Frueburgi*, hor. 14, 23′ 51″.

Defect. Lunæ partialis Lovanii obſ. anno 1560.

29. Anno Chriſti 1560 die 11 *Martii*, fuit eclipſis Lunæ partialis, cujus initium *Cornelius Gemma* conſpexit *Lovanii*, horis à meridie 15 40′. Vide *Cornelii Gemmæ Coſmocriticen*.

Tempus medium veri Plenilunii accidit *Londini* die 11 *Martii*, hor. 16. 10′ 22″, tempus verò apparens hor. 16 15′ 14″, quo tempore Sol erat in gr. 1. 36′ 33″ ♈, Luna in gr. 1, 36′ 33″ ♎, Anomalia latitudinis ſig. 6. gr. 10. 47′ 53″, Latitudo Lunæ vera 56′ 8″ M. A. Intervallum veri Plenilunii & maximæ obſcurationis 8′ 13″ ſubt. ac proinde medium Eclipſis *Londini*, hor. 16. 17′ 1″.

Semidiameter Lunæ, 16′ 44″, umbræ, 46′ 46″, Summa 63′ 30″, pars deficiens, 7′ 22″, digiti 2, 39′.

Scrupula incidentiæ ſunt 29′ 41″, quæ diviſa per motum horarium 35′ 39″, dabunt tempus incidentiæ, 49′ 57″; & proinde initium eclipſis *Londini*, hor. 15 17′ 4″, ſed *Lovanii*, hor. 15 40′ 4″. Omnino ut obſervavit *Cornelius Gemma*.

Synopſis

Synopſis Deliquiorum Lunarium ſuperiori ſeculo, à D. Tychone Brahæo *obſervatorum in* Huena, *majori ex parte, binis, ternis, & quaternis interdum accuratiſſimis organis T. B. unà cum tempore æquali ad Meridianum* Londinenſem *reducto.*

Eclipſes Lunæ 21 à D. Tychone Brahe habitæ.

N.	Temp. Med. *Londini.* An.	Menſ.	D.	H	'	"	Loc. ☉ verus ex Tabul. S.	gr.	'	"	Anomalia ☽ media. S.	gr	'	"	Locus ☽ Eccentricus. S	gr.	'	'	Diff. ' "
1	1573	Dec.	8	7	9	0	♐	26	50	21	7	24	27	29	♊	26	52	16	1+55
2	1576	Oct.	7	10	24	58	♎	24	29	51	2	5	25	43	♈	24	30	24	0+33
3	1577	Apr.	2	7	50	23	♈	22	44	28	7	6	31	42	♎	22	46	59	2+31
4	1577	Sept.	26	12	5	57	♎	13	33	33	0	11	20	58	♈	13	22	26	1− 7
5	1578	Sept.	15	12	30	29	♎	2	18	37	10	16	34	32	♈	2	18	52	0+15
6	1580	Jan.	31	9	26	50	♒	21	29	21	1	16	35	45	♌	21	30	42	1+21
7	1581	Jan.	19	9	17	0	♒	10	5	27	11	21	31	41	♌	10	6	39	1+12
8	1581	Jul.	15	16	16	27	♌	2	43	50	4	27	49	6	♒	2	44	7	0+17
9	1584	Nov.	7	12	6	53	♏	25	48	34	4	7	14	55	♉	25	45	27	2− 7
10	1587	Sept.	6	8	29	30	♍	23	8	27	10	1	24	15	♓	23	9	34	1+ 9
11	1588	Mart.	2	14	11	37	♓	22	49	15	3	20	4	29	♍	22	49	45	0+30
12	1590	Dec.	30	6	13	37	♑	19	8	59	9	11	51	58	♋	19	11	14	2+15
13	1592	Jun.	14	9	28	25	♋	3	14	54	1	4	12	17	♑	3	17	5	2+11
14	1592	Dec.	8	6	47	15	♐	27	12	53	6	5	14	40	♊	27	12	44	0− 9
15	1594	Oct.	18	18	14	0	♏	5	27	37	2	2	35	55	♉	5	28	3	0+26
16	1595	Apr.	13	15	28	17	♉	3	23	44	7	3	35	49	♏	3	19	15	4−29
17	1595	Oct.	7	19	29	2	♎	24	15	59	0	8	17	0	♈	24	14	21	1−38
18	1596	Apr.	2	8	25	17	♈	23	9	10	5	17	49	43	♎	23	10	39	1+29
19	1598	Feb.	10	17	22	10	♓	2	32	14	1	13	49	24	♍	2	35	15	3+ 1
20	1598	Aug.	6	6	53	39	♌	23	20	13	6	10	37	22	♒	23	21	12	0+59
21	1599	Jan.	30	17	12	51	♒	21	11	45	11	18	44	34	♌	21	14	9	2+24

51. Anno Chriſti, 1601 *Novembris*, die 29, facta eſt eclipſis Lunæ, cujus initium *Johannes Keplerus* obſervavit *Pragæ* circa horam 5. 24, finem circa horam 8, 35', *Keplerus in Aſtron Optica, pag.* 371.

Deliquium Lunare anno 1601 à Joan. Keplero obſervatum.

Tempus medium veræ ☍ ☉ ☽ accidit *Londini*, die *Novembris* 29, hor. 15 49' 10", quo tempore verus locus ☉ erat in gr. 17. 49' 6" ♐, verus locus ☽ in oppoſito, gr. 17. 49' 6" ♊, Argumentum latitudinis, ſig 5 gr. 23 54' 54", ipſaq; ☽ latitudo 31' 45" S. D. Reductio Orbitæ ☽ ad eclipticam 1' 28", Horarius motus ☽ à ☉ 35' 33", Tempus reductionis 2' 28" ſubtr. Æquatio temporis 4' 16" add. & Intervallum inter veram ☍ ☉ ☽, & maximam obſcurationem 4' 40", ſimilitèr add. itaq; medium Eclipſis erat *Londini*, hor. 6. 7' 36". Ac ſi ob Meridianorum diſcrimen addantur horæ ſcrupula 57', habebimus medium Eclipſis *Pragæ*, hor. 7 4' 36". Obſervatio habet hor. 6 59".

Semidiameter ☽, 16' 44", umbræ verò, 46' 32", ut ſit aggregatum utriuſque ſemidiametri 63' 16", ex quibus ablatá latitudine Lunæ, reſtat pars deficiens, 31' 31", & inde proveniunt digiti ecliptici 11 19'.

Scrupula incidentiæ inveniuntur 54' 17", ergo erit tempus incidentiæ, ſeu caſus. hor. 1. 31' 37", & initium Eclipſis *Pragæ*, hor. 5. 32' 59", finis autem hor. 8. 36' 13". Minimum ab obſervatione differens.

Eclipſis Lunæ anno 1603. Cœpit eclipſis Pragæ decem minutis poſtquam culminaſſet dexter humerus Aquarii, deſiit autem tribus minutis poſtquam caput Andromedæ culminaſſet, ergo h. 8 17′ In medio deficit Luna paulò plus 3 digitis, Kepl. in Aſtr. parte optica, p. 412. & 413.

52. Anno Chriſti 1603. die 8. *Novembris*, fuit deliquium Lunare, quod obſervavit *Johannes Keplerus Pragæ*; initium notavit horis à meridie 6 21′, & finem hor. 8 17. in medio Deliquii dimerſus eſt tres digitos.

Tempus medium veri Plenilunii fuit *Londini*, hor. à meridie 6. 10′ 29″, ad quod quidem momentum dabitur locus ☉ verus in gr. 25, 56′ 58″ ♏, verus locus ☽ in gr. 25. 56′ 58″ ♉, verus motus latitudinis, ſig. 6. gr. 9 35′ 30″, latitudo Lunæ vera 49′ 55″ M. A. Reductio orbitæ Lunæ ad Eclipticam 2′ 18″ ſubt. Locus Lunæ eclipticus in gr. 25 54′ 40″ ♉, motus horarius 29′ 56″, tempus reductionis Lunæ 4′ 36″ add. Æquatio temporis 9′ 21″ add. & intervallum veræ ☍ & maximæ obſcurationis 8′ 42″ ſubt. ac proinde medium Eclipſis *Londini*, hor. 6. 15′ 44″.

Propter diverſitatem Meridianorum addenda ſunt horæ ſcrupula 57′, & proveniet tempus maximæ obſcurationis *Pragæ*, hor. 7. 12′ 44″.

Semidiametrus Lunæ, 15′ 50″, Semidiameter umbræ Terræ, 43′ 15″. Summa ſemidiametrorum, 59′ 5″, de quibus ablatâ latitudine relinquitur pars deficiens, 9′ 10″, ergo erant digiti ecliptici 3. 28′.

Scrupula incidentiæ inveniuntur 31′ 36″, quæ diviſa per motum horarium, dant tempus incidentiæ hor. 1. 4′ 0″; dabitur itaq; initium Eclipſis *Pragæ*, hor. 6 8′ 44″, finis, hor. 8 16′ 44″.

Obſervatio Eclipſis Lunæ anno 1605. à Phil. Lansbergio.

53. Anno Chriſti, 1605. fuit eclipſis Lunæ partialis, cujus principium *Philippus Lansbergius* animadvertit *Goeſæ* in *Zelandia*, quatuor horis cum ſemiſſe poſt mediam noctem, defeceruntq; tunc digiti octo cum ſemiſſe ab Auſtro.

Tempus medium veræ ☍ ☉ ☽ erat *Londini*, hor. 15. 49′ 10″, dum ☉ vero ſuo motu eſſet in gr. 3 52′ 44″ ♎, ☽ in gr. 3. 52′ 44″ ♈, Anomalia latitudinis ſig. 5 gr. 23, 26′ 45″, latitudo ☽ vera, 34′ 12″, Sept. Deſc. Reductio orbitæ ☽ ad Eclipticam, 1′ 35″ ad. horarius motus ☽ à ☉ verus 29′ 9″, tempus reductionis ☽, 3′ 15″ ſubt. Tempus exaratum veræ ☍ ☉ ☽ hor. 15 45′ 55″, Æquatio temporis 1′ 17″ add. & Intervallum inter veram ☍ & maximam obſcurationem 6′ 8″ itidem addendum, quocirca medium Eclipſeos accidit *Londini*, hor. 15. 53′ 20″.

Propter differentiam Meridianorum addenda ſunt ſcrupula horæ 20′; ita ut cadat tempus maximæ obſcurationis *Goeſæ*, horis à meridie 16 13′ 20″.

Semidiameter ☽ 15′ 41″, umbræ 42′ 57″, Summa 58′ 38″, ex quibus demptâ latitudine, reſtat Pars deficiens 24′ 26″, unde colliguntur Digiti Ecliptici 9 20′ 51″.

Eclipſis Lunæ obſervata Oxonii à Johan. Bainbridgio, anno 1628.

54. Anno Chriſti 1628, die 10 *Januarii*, *Johannes Bainbridgius Oxonii* obſervavit Deliquium Lunare, veſperi.

Emerſionem alto Regulo, gr. 32. 29′, hor. 10. 0.

Finem alto Regulo, gr. 40 16′, hor. 10 57′.

Tempus medium veræ ☍ ☉ ☽ fuit *Londini*, juxta Calculum noſtrum, die 10 *Januarii*, hor. 9, 16′ 31″, & erat tunc temporis verus locus ☉ in gr. 0 30′ 33″ ♒, verus locus ☽ in orbita, in gr. 0, 30′ 33″ ♌, verus motus latitudinis ☽ a nodo boreo, gr. 1, 41′ 55″, Latitudo ☽ vera 8′ 53″ S. A. reductio ☽ 0′ 25″ ſubt. Horarius motus Lunæ à Sole 33′ 55″, tempus reductionis ☽ ad Eclipticam 0′ 44″ add. tempus igitur exaratum veræ ☍ cadit in horam 9 17′ 15″, æquatio temporis, 8′ 52″ ſubt. & intervallum veræ ☍, & maximæ obſcurationis 1′ 21″, itidem ſubtrahend. itaq; medium Eclipſeos erat *Londini*, hor. 9 7′ 2″.

Propter Meridianorum diſcrimen ſubtrahenda ſunt horæ ſcrupula 4′, quare medium Eclipſis erat *Oxonii*, hor. 9. 3′ 2″.

Semidiameter ☽ 16′ 30″, Umbræ 45′ 38″, Aggregatum Semidiametrorum 62′ 8″, pars deficiens 53′ 15″, ergo Digiti Ecliptici 19′ 21″.

Scrupula incidentiæ colliguntur 61′ 29″, quæ diviſa per motum horarium, dant

dant tempus incidentiæ & moræ dimidiæ ſimul, hor. 1 48′ 46″, Scrupula moræ dimidiæ 27′ 45″; tempus itaq; moræ dimidiæ 49′ 5″. ac proinde tempus emerſionis erat *Uxonii*, hor. 9. 52′ 7″, & finis, hor. 10 51′ 48″.

55. Anno Chriſti 1631, die 29 *Octobris*, fuit defectus ☽ totalis, cujus finem Doctiſſimus vir *Henricus Gellibrand* animadvertit *Londini* in *Collegio Greſhamenſi*, hor. 13. 7′ 28″: *Henricus Gellibrand* in *Appendice Longitudinis*.

Eclipſis Lunæ obſervata in collegio Greſham. Londin. à Henr. Gellibrand, anno 1631.

Tempus medium veri Plenilunii erat hor. 10 45′ 50″, quo quidem tempore Sol tenuit gr. 16 13′ 56″ ♏, Luna gr. 16 13′ 56″ ♉, Argumentum latitudinis, gr. 0 55′ 35″, Latitudo Lunæ vera 4′ 49″, S. A. Reductio orbitæ ☽ 0′ 13″ ſubt. Horarius motus 27′ 8″, Tempus reductionis ☽ 0′ 29″ add. Æquatio Dierum 9′ 56″ add. & Intervallum inter verum Plenilunium & maximam obſcurationem 0′ 53″ ſubtr. ita ut medium Eclipſeos contingat *Londini*, hor. 10 55′ 22″.

Semidiameter Lunæ, 15′ 22″, umbræ verò 41′ 35″, ut ſit Summa utriuſq; Semidiametri 56′ 57″, hinc detractâ ☽ latitudine, remanet Pars deficiens 52′ 7″, ergo digiti 20 20′.

Scrupula incidentiæ & moræ dimidiæ ſummatim 56′ 44″, quæ diviſa per motum horarium, oſtendunt dimidium durationis hor. 2 5′ 27″, ac proinde finis eclipſeos contigit hor. 13 0′ 49″, ut proximè obſervavit *Henricus Gellibrand*.

56. Anno Chriſti 1638, die 11 *Decembris* manè, fuit Eclipſis ☽ totalis, cujus medium accidit horis 13 58′, Initium totalis obſcurationis, hor. 13 7′ recuperatio luminis, hor. 14 42′ obſcuratio circuli ½ (i. e.) 7 ½ Dig. Rigel alta gr. 24 58′ 30″, hora noctis 12 45′, obſcuratio diametri ⅔ five 8 dig. Rigel alta gr. 24 37′, hor. noctis 12 50′ Illuminatio diametri 11/12, five 11 dig. paulò plus altit. Arcturi gr. 31 56′ 30″, hora noctis 3 45′, verſabatur Rigel inter Meridiem & Occaſum, Arcturus autem circa plagam Orientis. Ita obſervabatur hæc Lunæ Eclipſis ad *Newhouſe* propè *Coventriam*, à viris Clariſſimis, doctiſſimiſq: *Joanne Twyſden*, M. D. *Samuele Foſter*, & *Johanne Palmer*.

Obſervatio Eclipſis Lunaris, an. 1638. hab. ad Newhouſe propè Coventriam, præſentibus & aſſiſtentibus Joh. Palmer, & Joh. Twiſden.

Tempus medium veræ ☍ juxta Calculum noſtrum, fuit *Londini*, hor. 14 8′ 30″, & erat tunc temporis verus locus ☉ in gr. 29 23′ 17″ ♐, verus locus ☽ in gr. 29 23′ 17″ ♊, Tempus Reductionis 0′.47″ add. Æquatio temporis 0′ 14″ add. ergo tempus apparens veræ ☍ fuit hor. 14 9′ 30″, à quo ſi auferatur Intervallum inter veram ☍ & maximam Obſcurationem 1′ 25″, relinquitur medium Eclipſis *Londini*, hor 14 8′ 6″. *Coventriæ* verò hor. 14 2′ 6″. Semidiameter ☽ 16′ 22″, umbræ 45′ 8″, ſumma Semidiametrorum 61′ 30″, Latitudo ☽ 9′ 0″ M. A. Pars deficiens 52′ 30″; Digiti eclipticí 19 14′ 48″. Scrupula incidentiæ & moræ dimidiæ ſimul 60′ 50″, Scrupula moræ dimidiæ 27′ 19″, motus horarius ☽ à ☉ 33′ 8″, ergo datur tempus incidentiæ, & moræ dimidiæ hor. 1 50′ 8″, & tempus moræ dimidiæ 49′ 28″; itaq; Initium Eclipſis erat *Coventriæ*, hor. 12 11′ 58″, initium totalis obſcurationis hor. 13 12′ 38″, finis totalis Eclipſis hor. 14 51′ 34″, finis totius defectûs hor. 15 52′ 14″.

57. Anno Chriſti 1641 *Octobris* die 8, fuit Lunæ Deliquium, cujus initium ob nubium interpoſitionem, conſpici non poteſt, ſed finem animadvertit *Eſtone*, in agro *Northamptonienſi*, Doctiſſ. Theologus & Aſtronomus, *Johannes Palmer*, horis à meridie 8 38′ 8″ veſperi.

Obſervatio Eclipſis Lunaris, an. 1641. hab. Eſtonæ.

Tempus medium veræ ☍, juxta Tabulas noſtras, fuit *Londini*, hor. 7 3′ 0″, tempus apparens, hor. 7 6′ 52″, dum ☉ vero ſuo motu erat in gr. 25 35′ 4″ ♎, ☽ in gr. 25 35′ 4″ ♈, cum latitudine 38′ 35″ borea. Semidiameter ☽ 15′ 45″, Umbræ 43′ 4″, Summa Semidiametrorum 58′ 49″, Pars deficiens 20′ 14″, Digiti obſcurati 7 42′ 28″. Scrupula incidentiæ 44′ 24″, motus hora-

horarius ☽ à ☉ verus 29′ 29″, tempus incidentiæ hor. 1 30′ 21″, Intervallum inter veram ☍, & medium Eclipſis 6′ 51″ add. & proinde medium Eclipſis contingit *Londini*, hor. 7 13′ 43″, Finis hor. 8 44′ 4″. Ac propter diſcrimen Meridianorum, ſubtrahenda eſt *Eſtonæ*, ſcrupula 3′; itaq; finis Eclipſis viſus eſt *Eſtonæ*, hor. 8 41′, vix alitèr quàm *Johannes Palmer* obſervavit.

Eclipſis Lunæ obſervata Aubreæ, an. 1642

58. Anno Chriſti 1642, die 28 *Septembris* manè, fuit Lunare deliquium, cujus initium animadverſum eſt *Aubreæ*, in *Agro Somerſetenſi*, hor. 1 49′, immerſio totalis hor. 2 48′ ante meridiem diei 28.

Medium hujus Eclipſeos quoq; obſervavit Doctiſs. Vir, Ricciolus Dantiſci, hor. 14 44′.

Tempus medium veræ ☍ contingit die 27 *Septembris*, hor. 15. 49′ 51″ *Londini*, ad quod quidem tempus verus Solis locus eſt in gr. 14, 46′ 21″ ♎, & locus Lunæ in gr. 14, 46′ 21″ ♈, Anomalia latitudinis ☽ à ☊ ſig. 6. gr. 0 33′ 26″, Tempus reductum hor. 15 50′ 5″, Æquatio temporis 4′ 53″ add.

Ergo tempus apparens veri Plenilunii exactè erat *Londini*, hor. 15 54′ 48″ à quo cum auferatur Intervallum inter veram ☍, & maximam obſcurationem 0′ 25″, habebimus medium Eclipſis *Londini*, hor. 15 54′ 23″.

Propter differentiam Meridianorum ſubtrahenda ſunt *Aubreæ* ſcrup. horæ 13; ergo medium Eclipſeos conſpectum eſt *Aubreæ*, hor. 15 41′ 23″.

Ad hoc tempus latitudo ☽ eſt 2′ 54″ M. A. Semidiameter ☽ 16′ 20″, Semidiameter umbræ, 45′ 15″; Semidiametrorum Summa 61′ 35″, differentia 28′ 55″, Scrupula deficientia 58′ 41″, itaq; dabuntur digiti ecliptici 21 33′ 26″.

Scrupula incidentiæ & moræ dimidiæ ſimul 61′ 31″, ſcrupula moræ dimidiæ 28′ 46″, quæ per motum horarium ſigillatim diviſa, dant tempus incidentiæ, & moræ dimidiæ ſimul, hor. 1. 51′ 41″, & tempus moræ dimidiæ 52′ 13″. Ergo Eclipſeos initium fuit *Aubreæ*, hor. 1 49′ 42″. & initium totalis obſcurationis hor. 2 49′ 10″. Obſervationi prorſus omninò conſentiens.

Eclipſis Lunæ obſervata Etonæ, anno 1649, à Joanne Palmero.

59. Anno Chriſti 1649, die 15 *Maii*, factum eſt Lunæ deliquium totale, cujus initium D. *Johannes Palmerus* animadvertit *Etonæ*, hor. 13 8′, & initium totalis obſcurationis hor. 13 55′ 44″. Vide *Johannis Palmeri* Eclipſium Catalogum Anglico Sermone impreſſum, anno 1659.

Contigit tempus medium veri Plenilunii meridiano *Londinenſi*, hor. 14 39′ 0″. Ad quod tempus, ☉ vero ſuo motu fuit in gr. 5 3′ 27″ ♊, ☽ in oppoſito, gr. 5 3′ 27″ ♐, Anomalia latitudinis ſig. 5 gr. 29 5′ 49″, Latitudo vera, 4′ 43″, Sept. Deſc. Tempus apparens veri Plenilunii, hor. 14 46′ 27″, intervallum mediæ Eclipſis & veræ ☍ add. 0′ 41, ita ut medium Eclipſis erat *Londini*, hor. 14 47′ 8″, à quo propter Meridianorum diſcrimen, aufero 3′, & relinquitur medium Eclipſis *Etonæ*, hor. 14 44′ 8″.

Semidiameter Lunæ 16′ 41″. Umbræ 46′ 45″. Semidiametrorum ſumma 63′ 26″, & ſublatâ ☽ latitudine, reſtat pars deficiens 58′ 43″, digiti 21 9′ 54″.

Scrupula incidentiæ & moræ dimidiæ ſimul 63′ 15″, ſcrupula moræ dimidiæ 29′ 42″, motus horarius ☽ à ☉ verus 35′ 16″, ergo datur tempus incidentiæ, & moræ dimidiæ hor. 1 47′ 39″, & tempus moræ dimidiæ 50 33″, ac proinde Eclipſis initium *Etonæ*, hor. 12 56′ 29″, & principium totalis obſcurationis hor. 1 53′ 35″, vix alitèr quàm D. *Palmerus* obſervavit.

Tabulæ Lansbergianæ dant initium totalis obſcurationis *Etonæ*, hor. 13 40′ 48″, *Tab. Danicæ*, quas ſequitur *Eichſtadius* hor. 13 43′ & *Tab. Argoli*, hor. 1 29′, & initium Eclipſeos hor. 12 26′.

Obſ. Eclipſis ☽ an. 1647 habita, à Sam. Foſtero Aſtr. Profeſſore.

60. Anno Salvatoris noſtri 1647, die 10 *Januarii* veſperi, fuit defectus ☽ partialis, qui ab initio ad finem obſervabatur *Londini*, in *Collegio Greſhamenſi*, à *Samuele Foſtero* Aſtronomiæ Profeſſore.

Cœpit

Cœpit obſcuratio hor. 8 0′, deſinit hor. 10 20′, Digiti abſciſſi 4 ½, non plus in obſcuratione maxima.

Accidit tempus medium veræ ☍ die 10 *Januarii*, hor. 9 23′ 26″, quo tempore verus locus Solis fuit in gr. 0, 53′ 16″ ♒, & locus ☽, in gr. 0 53′ 16″ ♌, Nodus ☽ Boreus ſig. 3. gr. 21 18′ 6″, Argumentum latitudinis, gr. 9, 35′ 10″, tempus Reductionis 3′ 52″, add. & Æquatio temporis 8 56″ ſubt. ac proinde tempus apparens veri plenilunii hor. 9 18′ 22″, Intervallum inter medium eclipſis, & verum Plenilunium, 7′ 18″ ſubt. ideoq; medium eclipſis ſeu maxima Obſcuratio contigit *Londini*, hor. 9 11′ 4″.

Semidiameter Lunæ 16′ 45″, Umbræ 46′ 34″, Summa ſemidiametrorum 63′ 19″, pars deficiens Digiti 4 49′. Scrupula incidentiæ 39′ 0″, quæ diviſa per motum horarium 35′ 36″, exhibent tempus incidentiæ hor. 1 5′ 44″, ac proinde Eclipſeωs initium erat hor. 8 5′ 20, finis hor. 10 16′ 48″.

Eichſtadius ex *Tabulis Danicis* ſtatuit initium *Londini*, hor 8 2′ 38″, finis hor. 10. 36′ 20″. *Argolus* verò habet initium hor. 8 8′ 20″, finis hor. 10 35′ 40″.

61. Anno Chriſti 1650, die Solis 5 *Maii*, fuit Lunaris defectus, cujus finem notavimus *Luſſenhamia*, hor. 9 18′ veſperi. Hæc eclipſis erat etiam obſervata à Doctiſs. *Roberto Billingſley* in *villa de Morcott*, juxta *Luſſenhamiam* cum inſtrumentis ſatis idoneis, ubi itidem invenit tempus totalis emerſionis hor. 9 19′, ita ut judicavimus tempus Eclipſeωs finis ſit rectè conſtitutum.

Lunæ obſcur. obſ. à nobis, anno Chriſti, 1650.

Contigit tempus medium veri Plenilunii die 5 *Maii*, hor. 7 49′ 3″, *Londini*, ad quod tempus Sol vero ſuo motu erat in gr. 24 58′ 15″ ♉, Luna in gr. 24 58′ 15″ ♏ oppoſito, Argumentum latitudinis ☽ à Nodo Auſtrino, gr. 7 47′ 40″, latitudo ☽ vera 40′ 39″, M A. Reductio 1′ 53″ ſubt. Horarius motus 35′ 23″, tempus reductionis 3′ 11″ addendum; ergo datur tempus exaratum veræ ☍ ☉ ☽, hor. 7 52′ 14″, cui ſi addatur Æquatio temporis 9′ 28″, conflatur tempus apparens veræ ☍, hor. 8. 1′ 42″.

Semidiameter ☽ 16′ 42″, umbræ 46′ 48″, Summa 63′ 30″, pars deficiens 22′ 51″, Digiti 8 13′, Scrupula incidentiæ 48′ 47″, tempus incidentiæ, hor. 1 22′ 43″, Intervallum veræ ☍, & maximæ obſcurationis 5′ 59″ ſubtr. ac proinde medium Eclipſis *Londini*, hor. 7 55′ 43″, *Luſſenhamiæ* verò hor 7 53′ 19″; datur itaq; initium Eclipſeos hor. 6. 30′ 36″, finis hor. 9 16′ 2″, haud alitèr quàm nos obſervavimus.

62. Anno Chriſti 1652, die 14 *Martii*, fuit Eclipſis Lunaris, quæ obſervata eſt *Eſtone* in *Agro Northamptonienſi*, à Doctiſs. Mathematicis *Johanne Twyſden*, M. D: & *Johanne Palmero Eſtonenſi* Rectore.

Obſervatio Eclipſis Lunæ Eſtonæ, anno 1652.

Dig. obſcuratus 1, quando Aquila diſtabat à meridie gr. 79 44′ in plaga Orientali, ergo hora noctis 2 30′.

Dig. obſcuratus 1 ½, Cauda Cygni alta gr. 52 30′ in plaga Orientali.

Digiti obſcurati 6 ferè. Horologium Solare monſtravit horam tertiam juſtè. Spica ♍ diſtabat à Meridie verſus Occidentem gr. 36 42′. Ergo hora noctis 3 6′.

Digiti tandem obſcurati erant circitèr 10′, ſed tempus nebuloſum erat, ut reliquas *Phaſes*, nec finem obſervare potuêrunt.

63. Eodem anno 1652, die 7 *Septembris*, conſpecta eſt Eclipſis Lunæ, cujus finem obſervavimus *Luſſenhamiæ*, horis à meridie 7 59′ exactè, defecitq; Luna in ejus ortu plus quàm digiti 10 à Borea.

Eclipſis Lunæ anno 1652. obſerv. Luſſenhamiæ.

Tempus medium veræ ☍ accidit die 7. *Septembris*, hor. 6. 32′ 9″, *Londini*, quo tempore verus locus Solis eſt in gr. 25. 15′ 52″ ♍, & verus locus Lunæ in oppoſito gr. 25 15′ 52″ ♓. Anomalia latitudinis ☽ ſig. 11 gr. 23 24′ 52″, ipſaq; Latitudo ☽ 34′ 22″ M. D. Reductio 1′ 36″ add. Motus

horarius

horarius ☽ à ☉ 35′ 42″, Tempus Reductionis 2′ 41″ ſubtr. Tempus correctum veræ ☍, hor. 6 29′ 28″, Æquatio temporis 1′ 34″ ſubt. Datur itaq; tempus apparens veri Plenilunii ho. 6. 27′ 54″, *Luſſenhamiæ* verò, hor. 6 25′ 30″.

Semidiameter ☽ 16′ 45″, Umbræ 46′ 52″, Summa ſemidiametrorum 63′ 37″, de qua tolle latitudinem, & reſtabunt 29′ 15″, ac proinde Digiti ecliptici 10 30′.

Scrupula incidentiæ 53′ 32″, tempus incidentiæ hor. 1 30′ 0″, Intervallum inter verum Plenilunium, & medium Eclipſis 5′ 2″ add. Ergo erat medium Eclipſis *Luſſenhamiæ*, hor. 6 30′ 32″, ac proinde Eclipſeos

Initium hor. 5. 0′ 32″.
Finis hor. 8 0 32.

Obſervatio Deliquii Lunæ anno 1654, à Joh. Palmero.

64. Anno Chriſti 1654, die 17 *Auguſti*, fuit eclipſis Lunæ, cujus initium *Johannes Palmerus* obſervavit *Ectone*, hor. 9. 47′, finem hor. 11 35′ veſperi, & in medio ingréditur ☽ limbus auſtralis in umbram 5′, & plus. *Jo. Palmer. in Catalog. Eclipſ.*

Tempus medium veri Plenilunii fuit *Londini*, die 17 *Auguſti*, hor. 10 49′ 3″, & verus locus ☉ tunc temporis erat in gr. 4 32′ 18″ ♍, & verus locus ☽ in oppoſito gr. 4. 32′ 18″ ♓. Anomalia latitudinis gr. 10 14′ 35″. ipſaq; ☽ Latitudo 53′ 16″. Sept. Aſcend. Reductionis tempus 4′ 45″ add. Æquatio dierum 7′ 30″ ſubtrahenda; & intervallum inter verum Plenilunium & maximam obſcurationem 8′ 58″ ſubt. ac proinde medium Eclipſis fuit *Londini*, hor. 10 37′ 20″, ſed *Ectone*, hor. 10 34′ 20″.

Semidiameter Lunæ 15′ 58″, Umbræ 44′ 6″, Summa ſemidiametrorum 60′ 4″, & ſublatâ hinc latitudine, reſtant ſcrupula deficientia 6′ 48″, (quæ inſenſibiliter ab obſervatu recedit) ergo Digiti erant 2 33′ 19″.

Scrupula Incidentiæ 27′ 46″, horarius motus 30′ 55″, ergo dabitur tempus incidentiæ hor. 0 53′ 53″, quare hoc Lunare deliquium incipiebat *Ectone*, hor. 9 40′ 27″, & deſinebat hor. 11 28′ 13″.

Tabulæ Danicæ, ex Calculo *Eichſtadii*, præbent initium Eclipſis *Ectone*, hor. 9 42′ 4″, finem hor. 10 49′ 54″. *Tab. Argoli* ſtatuunt principium hor. 9 54′ 40″, & finem hor. 11 47′ 36″.

Obſervatio Eclipſis Lunæ anno 1656, Ectonæ.

65. Anno Chriſti 1656, die primo *Januarii*, fuit Plenilunium Eclipticum, cujus initium conſpectum eſt *Ectone*, hor. 6. 53′ 30″, finis hor. 9 55′ 50″ veſperi. In medio Eclipſis defecerunt digiti 11, ferè ab Auſtro. Ita obſervavit Doctiſs. *Iohannes Palmerus* Rector Eccleſiæ *Ectonenſis*.

Medium tempus veræ ☍ fuit *Londini* hor 8 36′ 45″, quo tempore Sol hæret in gr. 21. 30′ 5″ ♑, Luna in gr. 21 30′ 5″ ♋, Anomalia latitudinis ſig. 5 gr. 23. 47′ 6″. Latitudo ☽ 32′ 26″, Sept. Deſc. Horarius motus ☽ à ☉ 35′ 26″, Reductio 1′ 30″, Tempus reductionis 2′ 32″ ſubt. & Æquatio dierum 7′ 0″ etiam ſubtr. Tempus igitur apparens veri Plenilunii hor. 8 27′ 13″, intervallum inter veram ☍ & maximam obſcurationem 4′ 47″ ad. ergo datur medium Eclipſis *Londini*, hor. 8 32′ 0″, *Ectone* autem, hor. 8 29′ 0″.

Parallaxis ☽ Horizontalis 60′ 40″, Semiangulus Coni Umbræ 14′ 13″ ſubt. Ergo habebitur Semidiametrus umbræ, 46′ 27″, Semidiametrus ☽ 16′ 43″, Summa Semidiametrorum 63′ 10″, ex quibus detractâ latitudine, remanet pars deficiens 30′ 44″, & digiti 11 3′ 22″.

Scrupula incidentiæ, 54. 12′. Tempus Incidentiæ hor. 1 31′ 46″, erat itaq; Initium Eclipſis *Ectone*, hor. 6. 57′ 14″, finis hor. 10 0′ 46″.

Juxta Calculum *Eichſtadii* initium erat *Ectone*, hor. 6 47′ 0″, finis hor. 10 15′ 36″, ſed Ephemeris *Argoli* habet initium hor. 7 3′ 16″, finem hor. 10 10′ 8″.

Eclipſ. ☽ obſ. à J. Palmero, anno 1657.

66. Anno Chriſti 1657, *Iunii* die 15, fuit defectus ☽ totalis; cujus finem D. *Iohannes Palmerus* animadvertit *Ectone*, horis à meridie 10 16′.

Tempus

Tempus medium veræ ☍ contigit *Londini*, hor. 8. 39′ 23″, quo tempore ☉ vero ſuo motu fuit in gr. 4 26′ 15″ ♋, Anomalia latitudinis ☽ gr. 4 50′ 25″, Luna in gr. 4 26′ 15″ ♑, ☽ latitudo, 25′ 17″ S. A. Tempus reductionis ☽ ad Eclipticam, 2′ 14″ add. Æquatio temporis 1′ 36″ ſubt. & Intervallum inter veram ☍ & maximam obſcurationem 4′ 10″ etiam ſubtr. itaq; medium Eclipſis fuit *Londini*, hor. 8. 35′ 51″. Sed *Ectonæ*, hor. 8. 32′ 51″.

Semidiameter ☽ 16′ 5″, umbræ 44′ 39″, Aggregatum Semidiametrorum 60′ 44″, demptâq; latitudine, relinquitur Pars deficiens 35′ 27″, ac proinde Digiti Ecliptici colliguntur 13 13′ 30″.

Scrupula Incidentiæ, & moræ dimidiæ ſimul ſunt 55′ 13″. quæ diviſa per motum horarium 31′ 40″, exhibent tempus Incidentiæ hor. 1 44′ 37″, ergo finis Eclipſeos erat *Ectonæ*, hor. 10 17′ 28″.

Scrupula moræ dimidiæ inveniuntur 13′ 18″, quæ iidem diviſa per motum horarium, dant tempus moræ dimidiæ hor. 0 25′ 20″, ac proinde tempus totalis obſcuritatis hor. 0 50′ 40″.

Ephemerides Eichſtadii exhibent magnitudinem hujus eclipſeos digiturum 12 0′ exactè, ſed alitèr apparuit in Cœlo; nam obſervavimus hic *Luſſenbamiæ* totam Lunam fuiſſe eclipſatam ab hora 8 8′, ad horam 9 ferè, ut Calculus noſter habet.

Obſervatio à nobis facta.

67. Anno Chriſti 1659, 26 die *Aprilis*, fuit eclipſis Lunæ, cujus finem Doctiſs. Vir *Joannes Palmer* obſervavit *Ectonæ*, hor. 9 21′, quando viſa Lunæ altitudo erat gr. 11, vera gr. 11 59′ 22″.

Tempus medium veræ ☍ fuit *Londini*, hor. 7 45′ 42″, quo tempore Luna erat in gr. 16 8′ 31″ ♏, latitudo Lunæ vera 38′ 52″ auſtrina, tempus apparens veræ ☍ hor. 7 52′ 32″, & medium Eclipſis *Londini*, hor. 7 58′ 20″, *Ectonæ* verò, hor. 7 55′ 20″.

Semidiameter ☽ 16′ 38″, Umbræ 46′ 4″, Summa Semidiametrorum 62′ 42″, pars deficiens 23′ 50″, ergo Digiti 8 36′.

Scrupula incidentiæ colliguntur 49′ 12″, tempus incidentiæ hor. 1. 24′ 45″; ergo erat finis Eclipſeos *Ectonæ*, hor. 9 20′ 5″, quemadmodum obſervatio habet.

68. Anno Chriſti, 1659, die 19 *Octobris*, fuit eclipſis Lunæ partialis, cujus initium D. *Johannes Palmerus* obſervavit *Ectonæ*, horis à meridie 13 33′ 30″.

Eclipſis Lunæ obſervata 1659, à Doct. viro Jo. Palmero Ectonæ.

Tempus medium veræ ☍ accidit *Londini*, hor. 14 54′ 32″, tempus verò apparens hor. 15 0′ 8″, quo tempore Luna erat in gr. 6 32′ 56″ ♉, latitudo Lunæ 40′ 10″, medium Eclipſis hor. 15 7′ 13″.

Semidiameter Lunæ, 15′ 47″, umbræ 43′ 8″, Summa Semidiametrorum 58′ 55″, detractâ autem latitudine ☽, reſtat Pars deficiens 18′ 45″, hinc colliguntur digiti ecliptici 7 7′ 40″.

Scrupula incidentiæ inventa ſunt 43′ 31″, quæ diviſa per horarium motum 29′ 39″, producunt tempus incidentiæ hor. 1 28′ 4″, ergò cadit initium Eclipſis *Londini*, hor. 13 39′ 9″ ſed *Ectonæ*, hor. 13 36′ 9″, vix alitèr quàm D. *Johannes Palmerus* obſervavit.

69. Anno Chriſti 1663, die 12 *Februarii*, tempore matutino, erat eclipſis Lunæ partialis, cujus initium fuit obſervatum *Londini*, in *Collegio Greſham.* horis 1 32′ manè. Vide *Aſtron. Carol. Appendicem, pag.* 30.

Prior eclipſis Lunæ 1663, obſerv. Londini, in Coll. Greſhamenſi.

Contigit medium tempus veræ ☍ *Londini*, *Februarii* die 11, hor. 15 14′ 29″, quo quidem tempore fit ☽ in gr. 3 40′ 34″ ♍, Anomalia latitudinis ſig. 11, gr. 23 33′ 5′, ipſa latitudo Lunæ 33 39″ Merid. Deſc. hinc erit Reductio 1′ 34″, Tempus reductionis 3′ 2″ ſubtrahend. Æquatio temporis 7′ 41″ auferenda; ergo tempus apparens veræ ☍ exactè erat hor. 15 3′ 46″, maxima autem obſcuratio, ſeu medium eclipſis, hor. 15 9′ 28″.

Semidiameter Lunæ 15′ 59″, & umbræ Semidiameter 43′ 51″. Summa Semidiametrorum 59′ 50″, à qua ſi demas ☽ latitudinem, relinquuntur 26′ 11″, quæ ſi ducas in 6, & productum dividas per Semidiametrum Lunæ dabunt Digitos 9 47′ 37″.

Scrupula incidentiæ ſunt 49′ 28″, tempus incidentiæ hor. 1. 36′ 6″, ac proinde Eclipſeos Initium, hor. 1 33′ 22″ manè, omnino obſervationi conſentiens.

Poſterior Eclipſis Lunæ anno 1663. obſervata Londini.

70. Annó Chriſti 1663, *Auguſti* die 8, contigit Eclipſis Lunaris, quæ obſervata fuit *Londini*, à D. *Henrico Sutton*, & *Roberto Anderſon*, in vico vocato *Threedneedle-Street*. Initium accidit ante ortum Lunæ, ſed finis exactè erat obſervata hor. 9. 58′ veſperi.

Tempus medium veræ ☍ cadit in diem 8 *Auguſti*, hor. 8 13′ 11″, quo quidem tempore Luna erat in gr. 25 34′ 32″ ♒, Argumentum latitudinis, ſig. 5. gr. 24 51′ 41″, ipſaq; Lunæ Latitudo 26′ 50″, Sept. Deſc. Reductio 1′ 15″, Tempus reductionis 2′ 30″ ſubt. & Æquatio temporis ſimilitèr ſubt. 9′ 7″, ac proinde tempus apparens veræ ☍, hor. 8 1′ 34″, Intervallum veræ ☍, ac maximæ obſcurationis 4′ 40″ add. ita ut medium Eclipſis ſit hor. 8 6′ 14″.

Ad quod tempus datus eſt Lunæ Semidiameter 15′ 49″, Umbræ 43′ 33″, horum ſemidiametrorum Summa 59′ 22″, & ſublatâ hinc latitudine, reſtant ſcrupula deficientia 32′ 32″, ergo Digiti ecliptici erunt 12 20′.

Scrupula incidentiæ inveniuntur 52′ 57″, horarius motus 29′ 57″; datur itaq; tempus incidentiæ hor. 1 46′ 5″, ergo initium Eclipſis hor. 6 20′ 9″, finis hor. 9 52′ 19″, proximè Obſervationi conſentiens.

Obſervatio Eclipſis Lunæ 1664, Londini habita.

71. Anno Chriſti 1664, *Julii* die 27 veſperi, contigit Eclipſis ☽, cujus finem D. *Joſephus Moxon* & *Robertus Anderſonus* obſervârunt *Londini*, hor. 13 22′ P. M.

Tempus medium veri Plenilunii erat hor. 11. 34′ 28″, quo quidem tempore hæret ☽, gr. 14 54′ 33″ ♒, cum latitudine auſtrina 15′ 25″ Reductio orbitæ Lunæ inventa eſt 0′ 44″ ſubt. horarius motus 27′ 27″, tempus reductionis Lunæ 1′ 36″ add. Æquatio temporis 9′ 56″ ſubt. & Intervallum veri Plenilunii & maximæ obſcurationis etiam ſubt. ita ut medium Eclipſeos fuit *Londini*, hor. 11. 23′ 13″.

Semidiameter Lunæ, 15′ 24″, Semidiameter umbræ Terreſtris 42′ 5″, Summa 57′ 29″, pars deficiens 42′ 4″, hinc digiti ecliptici erunt 16 23′ 22″.

Scrupula incidentiæ & moræ dimidiæ ſimul inveniuntur 55′ 23″, quæ diviſa per motum horarium ☽ à ☉, dabunt Tempus incidentiæ, &c. hor. 2 1′ 3″, ergo initium Eclipſis erat *Londini*, hor. 9, 22′ 10″, & finis hor. 13 24′ 16″, omnibus modis ut obſervârunt.

Calculus *Eichſtadii* ex *Tabulis Danicis* dat hujus Eclipſeos initium hor. 9 25′ finem hor. 13 36′.

Obſerva-

§. X.

OBSERVATIONES ECLIPSIUM SOLARIUM.

1. ANno 3. *Olympiadis* quadrageſimæ octavæ, ultimo die *Thargelionis* undecimæ Menſis Græcorum, cum *Lydi* & *Medi* æquo Marte inter ſe pugnarent, contigit durante conflictu, ut ex die repentè Nox efficeretur; erat enim tunc temporis Eclipſis Solis omnium maxima, quam *Thales Mileſius* eo tempore *Ionibus* prædixerat. *Herodotus*, *lib*. 2. de Bello *Lydos* inter & *Medos*

Accidit hæc Solis Eclipſis anno *Nabonaſſari* 163, die 13 *Tybi*, hor. 2 49′ 44″ T M. ſub Meridiano *Londinenſi*, quo tempore locus Luminarium eſt in gr 29 48′ 25″ ♉, Anomalia latitudinis ſig. o gr. 4 9′ 53″, tempus reductionis 1′ 42″ add. & Æquatio dierum 8′ 49″ ſimilitèr add. ita ut tempore apparens veræ ☌ eſſet *Londini*, hor. 3 0′ 15″.

Propter differentiam Meridianorum addendæ ſunt horæ 2 24′, tempus itaq; apparens veræ ☌ fuit *SARDIBUS*, hor. 5 24′ 15″, at viſa ☌ ſequebatur veram, hor. 1 26′ 45″, & medium eclipſis erat ibi hor. 6, 51′ 0″. Ad quod tempus datur Parallaxis longitudinis ☽ à ☉ 51′ 34″ ad occaſum, Parallaxis latitudinis 17′ 16″ in Auſtrum, Latitudo Lunæ vera 26′ 33″ borea, ergo latitudo ☽ viſa 0′ 43″ auſtrina. Semidiameter Solis 16′ 2″ Lunæ 16′ 44″ Summa ſemidiametrorum 32′ 46″, pars deficiens, 32′ 3″, digiti ecliptici 12 exactè. In locis autem adjacentibus ad Auſtrum intra Germ. milliaria 15, aut circitèr, totus ☉ deficit cum mora, nam illic hoc Solare deliquium erat digitorum 12 16′, itaq; tenebræ erant nocturnis quodammodo majores reſpectu ſubitæ mutationis.

Mirabile Solis Deliquium an. Nabon. 163. THEON in Commentariis ſuper cap. 11. lib. 6. magni operis Ptol. ſcribit, hanc Eclipſ. in locis quæ ſunt circa Helleſpontum in toto Sole accuratè eſſe factam, ut nihil de eo appareret; & Cleomedes refert, Sol totus in Helleſponto deficiens, obſervatus eſt in Alexandria 5ª parte Diamet. ſalva reliqua deficere.

2. Ante annum à cæde *Julii Cæſaris* elapſum, *Romam* intrante *Auguſto*, viſus eſt mirabilis ☉ defectus, horâ diei tertiâ, quam ob cauſam ☉ orbem ſuum celaſſe dicitur; Lux enim, inquit *Julius Obſequens*, tunc ita fulſit, ut tanquam die orto ad opus ſurgeretur. Id quod *DIO* hiſce retulit, ὁ ἥλιος ποτὲ καὶ νυκτὸς ἐξέλαμψε, Aliquando, inquit, Sol etiam nocte effulſit. *Sueton.* etiam in *Auguſto*, cap. 95. Poſt necem, ait, *Cæſaris*, reverſo ab *Apollonia*, & ingrediente Urbem *Auguſto*, repentè, liquido, puro, ſerenoq; die, Circulus ad ſpeciem *Cæleſtis arcûs* Orbem ☉ ambiit. Atq; hinc *Veleius* hoc ☉ deliquium expreſſit his verbis; *Cum intraret* Romam Auguſtus, *Solis Orbis ſuper caput ejus curvatus æqualitèr, rotundatusq; in colorem arcûs, veluti Coronam tanti mox Viri capiti imponens, conſpectus eſt.* Ubi notandum, hanc Coronam verſicolorem, non extra Orbem Solis viſam, ſed ipſummet Orbem Solis curvatum & rotundatum; ideoq; idem *Obſequens* ait, Solem tum Orbe modico incluſum. Vide *Oroſium*, lib. 2. cap. 20. *Senec. Nat. Quæſt.* cap. 2. *Aurel. Victor.* & alios. Incidit hoc tempus Deliquii Solaris in annum à Mundo condito 3912, diem 14 *Januarii*, ante Chriſti Natalem 38.

Eclipſis Solis mirabilis ante Chriſti Nativitatem, 38.

Tempus medium veræ ☌ fuit die 13 *Januarii*, hor. 20. 20′ 20″, tempus apparens hor. 20 17′ 16″, *Romæ* autem, quæ orientalior eſt, 51 horæ ſcr. hor. 9 8′ 16″, à media nocte, quo tempore Luminaria inveniuntur in gr. 22 18′ 33″ ♑, medium Cœli gr. 12 39′ ♐, Angulus meridianus gr. 82 35′, Altitudo med. Cœli gr. 25 34′, altitudo Nonageſimi gr. 26 33′, horizontalis Parallaxis ☽ à ☉ 57′ 0″, Parallaxis longitudinis 20′ 48″, latitudinis 50′ 59″.

Ad horam antecedentem, *viz.* hor. 8 8′ 16″, à media nocte, erit Parallaxis longitudinis 28′ 16″, parallaxis latitudinis 49′ 2″, horarius motus Lunæ à Sole verus 33′ 11″, viſus verò 25′ 43″ ☉ erat in Quadrante Orientali,

ergo viſa Luminarium Synodus antecedebat veram 48′ 32″, mediumq; eclipſis viſum eſt *Romæ*, hor. 8 19′ 44″ à media nocte.

Ad hoc tempus parallaxis latitudinis ☽ à ☉ erit 49′ 28″ auſtrina. Latitudo ☽ vera 47′ 1″ Borea, latitudo ☽ viſa 2′ 27″ auſtrina. Semidiameter ☉ 16′ 32″, Semidiameter ☽ 16′ 22″, Summa 32′ 54″, pars deficiens, 30′ 27″, Digiti eclipſici 11 3′ ab Auſtro; itaq; margo ☉ ſuprema prominebat inſtar lucidæ coronæ, ut ſupra memorati Autores unanimiter prodiderunt.

Maxima Solis Eclipſis, anno Chriſti 17, quo tempore totus Sol Romæ, & in compluribus Italiæ locis, viſus fuit obſcurari.

3. Annis poſtremis *Auguſti Cæſaris* Regni, contigit eclipſis ☉ pene totalis, quæ mortem ejus pronunciaſſe dicitur. Unde *Dio Caſſius Nicæus* hæc affert: τέρατα δὲ πρὸ τούτων αὐτῷ φανερά, οὐ μάλα ἄδηλα, ἐκεῖνα ἐδεδείχει, ... γὰρ ἥλιος πᾶς ἐξέλιπε. *Prodigia, quæ id ei pronunciarent, vel eò tenderent, neq; minima, neq; obſcura evenerant. Nam & Sol totus defecerat.* Et paulò poſt, ταῦτα μὲν ζῶντος ἔτ' αὐτοῦ προεφάνη. *Hæc*, inquit, *Prodigia vivo adhuc Auguſto, ante mortem ejus apparuerant.* Atq; his Autoribus accedit etiam *Nicephorus, Calliſti Xanthopulus, lib* 1. *cap.* 17. *Auguſtus*, ait, *cum quadraginta tres, ſive, ut aliis placet, quadraginta ſeptem annis, unus ipſe Imperator fuiſſet, & ſupra* 75 *annos vixiſſet, obiit: Quo tempore traditur Solis fuiſſe deliquium, & fames maxima*: Quocirca, iſthæc Eclipſis ex ſupputationibus Aſtronomicis inventa eſt tertio ante *Auguſti* mortem evenire anno, quemadmodum eam invenit *Paulus de Mistleburge, Fori Sempronii Epiſcopus. Anno* (inquit) *Domini Salvatoris juxta conſuetam ſupputationem* 17 *totus pene Sol* Romæ, *& in compluribus* Italiæ *locis viſus fuit obſcurari, die* Febr. 15, *horâ ferè meridianâ, in* 26 *gradu* Aquarii, *Sole domum Regiam poſſidente; quamobrem juxta* Chaldæorum *Sententias, mortem Summi Regis portendebat.*

Tempus medium veræ ☌ contigit *Londini*, die 14 *Febr.* hor. 21 11′ 3″, quo tempore Luminaria ſunt in gr. 25 20′ 10″ ♒, Argumentum latitudinis ☽ ſig. 0, gr. 8 43′ 14″, tempus reductionis orbitæ ☽ ad eclipticam 3′ 51″ addendum; Æquatio dierum 9′ 9″ ſubt. tempus itaq; apparens veræ ☌ fuit hor. 9. 5′ 45″ à media nocte; *Romæ* verò, hor. 9 56′ 45″. Tunc datur medium Cœli gr. 24 51′ ♑, angulus meridianus gr. 79 37′, altitudo medii Cœli gr. 26 44′, angulus Eclipticæ cum Horizonte gr. 28 32′, elongatio ☉ à Nonageſimo gr. 10 47, parallaxis longitudinis 5′ 4″, latitudinis 49′ 48″, Motus horarius ☽ à ☉ verus 32′ 42″, viſus ad quadrantem hor. 5′ 52″. Sol erat in Quadrante orientali, ergo viſa copula antecedebat veram 12′ 56″, mediumq; eclipſis conſpectum eſt *Romæ*, hor. à media nocte 9 43′ 49″, tunc datur Parallaxis longit. ☽ à ☉ 7′ 3″, Parallaxis latit. 50′ 12″, latit. ☽ vera 44′ 45″ borea, latit. viſa 5′ 27″ auſtrina. Semidiameter ☉ 16′ 23″, ☽ 16′ 17″, Summa ſemidiametrorum 32′ 40″, pars deficiens 27′ 13″, Digiti ecliptici 10 fere; ergo ☉ *Romæ* maximam obſcurationem tunc patitur. In locis verò magis ad Auſtrum erat eclipſis Digitorum 12.

Eclipſis Solis Romæ viſa, anno 237, quo tempore tanta Sol. obſcuratio fuit, ut nox crederetur, neq; ſine luminibus accenſis quicquam agi poſſet, ut refert Julianus Capitolinus.

4. Anno Chriſti 237, die 12 *Aprilis*, fuit Eclipſis maxima. Tunc enim *Romæ* horis poſt meridiem 4 53′, è diametro Solis defecerunt digiti 10 24′. Idq; contigit *P. Titio Perpetuo*, & *L. Ovinio Ruſtico Corneliano Coſſ.* eo ipſo tempore, quo *M. Antonius Gordianus Imp.* eſt electus. Hinc *Julius Capitolinus*, ſub *Gordiani* hujus tertii Imperio mentionem ejuſdem eclipſeos faciens: Indicium, inquit, non diu imperaturi *Gordiani* (etiam hujus tertii) hoc fuit, quòd Eclipſis Solis facta eſt, ut Nox crederetur, neq; ſine luminibus accenſis quidquam agi poſſet.

Tempus apparens veræ ☌ fuit *Londini*, horis à meridie 2 33′ 29″, *Romæ* verò, quæ 51′ ſcrup. horæ orientalior eſt, horis à meridie 3 24′ 29″, Luminaria in gr. 21 58′ 32″ ♈, aſcenſio recta ☉ gr. 20 19′, med. Cœli gr. 12 51′ ♊, angulus meridianus gr. 82 40′, altitudo med. Cœli gr. 70 23′, altitudo Nonageſimi gr. 70 33′, elongatio ☉ à Nonageſimo gr. 53 29′ ad occaſum, parallaxis longit. 44′ 6″, latit. 19′ 22″. Hinc intervallum veræ & viſæ

viſæ ☌ hor. 1 28′ 54″ add. Itaq; viſa Synodus erat *Romæ*, hor. 4 53′ 23″. Datur tunc

Medium Cœli gr. 3 24′ ♋, angulus meridianus gr. 88 32′, altitudo medii Cœli gr. 71 27′, angulus Eclipticæ cum Horizonte gr. 71 27′, diſtantia ☉ à Nonageſimo gr. 70 52″, parallaxis longitudinis 52′ 9″, parallaxis latitudinis 18′ 31″.

Semidiameter ☉ 16′ 9″, ☽ 16′ 41″, Summa ſemidiametrorum 32′ 50″, latitudo viſa 4′ 52″ borea, pars deficiens 27′ 58″, Digiti 10 24′.

Eclipſis Solis obſervata Romæ, an. 238.

5. Anno Chriſti 238, die 2 *Aprilis*, facta eſt Eclipſis Solis, cujus medium conſpectum eſt *Romæ* horis à media nocte 7 53′

Tempus apparens veræ ☌ contigit *Londini*, hor. 7 35′ 20″ à media nocte, quo tempore ☉ & ☽ conjuncti ſunt in gr. 11 48′ 1″ ♈, & tempus apparens veræ ☌ erat *Romæ*, hor. 8 26′ 20″, tunc temporis eſt medium Cœli gr. 14 57″ ♒, angulus meridianus gr. 72 54′, altitudo Nonag. gr. 35 29′, paral. Horizontalis Lunæ à Sole 58′ 15″, Parallaxis Longitudinis 17′ 33″, latitudinis 47′ 26″.

Ad ſcrup. 45′ ante veram ☌, nempe hor. 7 41′ 20″ à media nocte, fuit medium Cœli gr. 3 49′ ♒, angulus meridianus gr. 76 22′, altitudo medii Cœli gr. 28 36″, angulus eclipticæ & horizontis gr. 31 26, elongatio ☉ à Nonag. gr. 44 34′, Parallaxis longitudinis 21′ 19″, latit. 49′ 42″, ☉ verſabatur in Quadrante Orientali; ergo viſa Synodus antecedebat veram ſcrup. hor 34′ 41″, ac proinde medium Eclipſis conſpectum eſt *Romæ*, hor. 7 51′ 39″, quemadmodum Obſervatio habet.

Semidiameter Solis 16′ 11″, Lunæ 16′ 42″, Summa ſemidiametrorum 32′ 53″, latitudo ☽ vera, gr. 1 1′ 13″, viſa 12′ 2″ borea, pars deficiens 20′ 51″, Puncti eclipt. 7 50′.

Altera Solis Defectio Romæ obſervata anno 334.

6. Anno Chriſti 334, *Optato & Paulino Coſſ.* ☉ medii diei tempore, Lunæ Radiis, quaſi quibuſdam obſtaculis impeditus, fulgida ſplendoris ſui lumina mortalibus denegavit, *Julius Firmicus*, *lib.* 1. *cap.* 2.

Tempus medium veræ ☌ accidit *Londini*, die 15 *Julii*, hor. 23 27′ 0″, quo tempore duo luminaria ☉ & ☽ ſunt in gr. 24 3′ 39″ ♋, Anomalia latitudinis à Nodo ☊ ſig. 5 gr. 26 51′ 12″, Reductio ☽ 0′ 47″ add. tempus Reductionis 1′ 36″, ſubtr. & Æquatio temporis 7′ 37″ etiam ſubt. ergo tempus apparens veræ ☌ erat *Londini*, hor. 23 17′ 47″, *Romæ* autem quæ ſcrup. 51′ horæ orientalior eſt, horis à meridie 0 8′ 47″. Tunc temporis eſt aſcenſio recta med. Cœli gr. 118 9′. Med. Cœli in ecliptica gr. 26 8′ ♋, angulus meridianus gr. 79 8′, altitudo med. Cœli gr. 68 58′, angulus Eclipticæ cum Horizonte gr. 69 22′, elongatio Solis à Nonageſimo gr. 2 10′, Horizontalis parallaxis Lunæ à Sole 54′ 41″, parallaxis longit. 1′ 56″, parallaxis latit. 19′ 16″.

Cumq; hæc Luminarium Synodus cadat in Quadrante Eclipticæ Orientali, adeoq; ad ſcrup. horæ 15 citiùs, nempe hor. 11 53′ 47″ à media nocte, eſt aſcenſio recta Solis gr. 115 57′, med. Cœli gr. 22 35′ ♋, angulus meridianus gr. 80 30′, altitudo med. Cœli gr. 69 35′, altitudo Nonag. gr. 69 53′, elongatio Solis à nonag. gr. 4 59′ ad ortum, Parallaxis longitudinis 4′ 27″, latitudinis 18′ 49″, motus ☽ à ☉ verus in ſcrup. 15′, horæ 7′ 21″, Differentia Parallaxeos longitudinis 2′ 31″ ſubt. motus ☽ à ☉ viſus in ſcrup. 15′, horæ 4′ 50″, ergo viſa conjunctio antecedebat veram 6′ 0″, ac proinde medium Eclipſis fuit *Romæ*, hor 0 2′ 47″ poſt meridiem, id eſt, in ipſo pene meridie, prout habet Obſervatio: Ad hoc tempus datur

Parallaxis longit. 2′ 56″, Parallaxis latit. 19′ 5″ auſtrina, latitudo ☽ vera 16′ 43″ Borea, viſa 2′ 22″ Auſtrina. Semidiameter Solis 16′ 6″, Lunæ 15′ 42″, Summa ſemidiametrorum 31′ 48″, pars deficiens 29′ 26″, ergo proveniunt digiti obſcurati 11 0′; itaq; totus pene Sol obſcuratus erat, & fulgida

fulgida ſplendoris ſui lumina mortalibus denegabat, quemadmodum *Julius Firmicus* annotavit.

Obſervatio Albategnii ſuper Eclipſi Solis an. 891.

7 Anno ab *Alexandri* obitu 1214, à Chriſto nato 891, die 8 *Auguſti*, fuit ee ipſis Solis, cujus medium *Albategnius Arabs* conſpex t *Aractæ Syriæ*, una horâ temporali poſt meridiem, deficiebatq; tunc ab Auſtro plus quàm Beſſis Diametri Solis, *Albategnius*, *cap.* 30. & *Lansbergius fol.* 127. *Obſervat. Aſtron.*

Tempus apparens veræ ☌ factum eſt *Londini*, horis à media nocte 9 53′ 36″, *Aractæ* verò, quæ orientalior eſt, horis 3. 20′, horâ 1 13 36 poſt meridiem. Erat tunc ☉ & ☽ in gr. 19 14′ 6″ ♌, Medium Cœli gr. 8. 26′ ♍, angulus meridianus gr. 67 58′, altitudo medii Cœli gr. 62 26, altitudo Nonageſimi gr. 64, 36′, Parallaxis Horizontalis ☽ à ☉ 53′ 36″, Parallaxis longitudinis 6′ 50″, parallaxis latitudinis 22′ 59″ in Auſtrum.

Ad Scrup. 30′ horæ poſt veram ☌, nempe Hor. 1. 43′ 36″, eſt recta Aſcenſio Solis gr. 141, 42′, medium Cœli gr. 16, 31′ ♍, angulus meridianus gr. 67 2′, altitudo med. Cœli gr. 59 20′, altitudo Nonageſimi gr. 61 59′, elongatio ☉ à Nonageſimo gr 14 14′ ad occaſum, Parallaxis longitudinis 11′ 38″, latitudinis 25′ 10″, ſemihorarius motus ☽ à ☉ verus 13′ 46″, viſus 8′ 58″, atq; hinc intervallum inter veram & viſam ☌ 22′ 50″ addendum, ac proinde viſa ☌ hor. 1 36′ 26″ poſt meridiem. Datur parallaxis longitudinis 10′ 29″, parallaxis latitudinis 24′ 39″ Auſtrina, Latitudo Lunæ vera 16′ 50″ borea, Latitudo viſa 7′ 49″ auſtrina, Semidiameter ☉ 16′ 10″, Semidiameter ☽ 15′ 26″, Summa 31′ 36″, pars deficiens 23′ 47″, ergo colliguntur Digiti ecliptici 8 49′. Omnibus modis ut *Albategnius* conſpexit.

Obſ. Deliquii Solis, an. 901.

8. Anno ab obitu *Alexandri* 1224, à Chriſto nato 901, die 23 Menſis *Januarii*, facta eſt Eclipſis Solis, cujus medium contigit *Aractæ Syriæ*, tribus horis minùs horæ ſemiſſe, ante medium diem; deficiebatq; tunc circiter beſſis Diametri Solis à Borea, *Albategnius*, *cap.* 30.

Tempus medium veræ Synodi contigit *Londini*, die 23, hor. 6 12′ 39″, à media nocte, quo tempore ☉ & ☽ erant in gr. 8 36′ 27″ ♒, non procul à cauda Draconis, tum in gr. 19 38′ 33″ ejuſdem ſigni; hinc datur reductio ☽ 2′ 38″, tempus Reductionis 4′ 42″ ſubt. Æquatio dierum 9′ 47″ etiam ſubtr. tempus itaq; apparens contigit *Londini*, hor. 5 58′ 10″, à media nocte, *Aractæ* verò, quæ horis 3 20′ orientalior eſt, hor. à media nocte 9 18′ 10″.

Ad hoc tempus medium Cœli erat gr. 0 32′ ♑, angulus meridianus gr. 89 46′, altitudo M. C. gr. 30 29′, altitudo Nonageſimi gr. 30 29′, horizontalis parallaxis ☽ à ☉ 57′ 12″, parallaxis longitudinis 17′ 44″, latitudinis 49′ 18″.

Ad horam antecedentem, *viz.* 8 18′ 10″ à media nocte, datur Aſcenſio Solis recta gr. 311 1′, medium Cœli gr. 16 42′ ♐, angulus meridianus gr. 84 16, altitudo medii Cœli gr. 31 9′, altitudo Nonageſimi gr. 31 37′, elongatio ☉ à Nonageſimo gr, 61 15′, parallaxis longitudinis 26′ 57″, latitudinis 48′ 42″, horarius motus ☽ à ☉ verus 33′ 33″, viſus 25′ 0″, atque hinc intervallum inter veram ☌ & viſam 42′ 33″ ſubt. Adeoq; eclipſis medium conſpectum eſt *Aractæ*, hor. 8 35′ 37″ à media nocte. Tunc temporis erat parallaxis longitudinis 23′ 48″, parallaxis latitudinis 48′ 52″ auſtrina, latitudo ☽ vera 59′ 32″ borea, latitudo viſa 10′ 40″, Semidiameter ☉ 16′ 33″, Lunæ 16′ 26″, Summa 32′ 59″, pars deficiens 22′ 19″, digiti ecliptici 8 5′, omnino ut *Albategnius* obſervavit.

Magna ecl. ☉ in Anglia, an. Chriſti 1133. obſervata.

9. Anno Chriſti 1133, die ſecundo *Auguſti*, obſervata eſt magna Eclipſis Solaris in *Anglia*, in cujus medio, ſeu maxima obſcuratione, apparebant in Cœlo Stellæ illuſtriores, ut notavit *Wilhelmus Malmesburienſis*: Vide Catalogum Eclipſium à *Joſhua Childrea* editum ante annos 7.

Medium tempus veræ ☌ contigit *Londini* die 5 *Auguſti* hor. 23 41′ 58″, quo

quo tempore Luminaria conjunguntur in gr. 15 51′ 22″ ♌, non procul à cauda Draconis, in gr. 22 12′ 21″ ejuſdem ſigni; hinc colligimus Argumentum latitudinis ☽ à nodo boreo, ſig. 5 gr. 23 39′ 0″. Tempus reductionis 2′ 36″ ſubt. Æquationem temporis 9′ 54″ etiam ſubtr. ac proinde Tempus apparens veræ ☌ fuit *Londini*, hor. 23 29′ 28″, Urbi verò *Malmesburienſi*, quæ 8 horæ ſcrupulis occidentalior eſt, hor. à meridie 23 21′ 28″.

Ad hoc tempus medium Cœli eſt gr. 6 18′ ♌, angulus meridianus gr. 75 32′, altitudo Poli *Malmesburienſis* gr. 51 36′, altitudo med. Cœli gr. 57 10′, Gradus Nonageſimus gr. 27 8′ ♋, angulus orientis gr. 58 20′, elongatio Solis à Nonageſimo gr. 18 43′ ad ortum, Parallaxis itaq; longitudinis erit 15′ 53″, latitudinis 30′ 33″. At quia hæc Conjunctio Ecliptica accidit in Quadrante Eclipticæ Orientali, ergo diviſâ Parallaxi longitudinis per motum horarium ☽ à ☉ viſum 26′ 17″, habetur intervallum inter veram ☌ & viſam 36′ 15″, quod à tempore veræ ☌ ſublatum, relinquit viſam Hor. 10 45′ 13″, A. M.

Tunc temporis parallaxis longitudinis eſt 21′ 18″, latitudinis 29′ 23″ auſt vera Lunæ latitudo 35′ 37″ borea, latitudo viſa 5′ 44″ etiam borea. Semidiameter Solis 16′ 7″, Lunæ 16′ 41″, ſumma ſemidiametrorum 32′ 48″, pars deficiens 27′ 4″, digiti ecliptici 10 5′. Scribit *Johannes Stow in Chronologia*, quod appareret Sol in medio Deliquii ad ſimilitudinem Lunæ corniculatæ, nempe ut viſa eſt in tertia ejus Quadratura, itaq; non ſupponenda eſt, ut hæc eclipſis ultra 10 digitos ſe extenderet, quemadmodum ex hoc Calculo etiam comprobatur.

10. Anno Chriſti 1140, die 20 *Martii*, paulò poſt meridiem, fuit tanta & inſueta Eclipſis Solis in *Urbe Malmesburienſi*, & per totam *Angliam* conſpecta, ut Stellæ in Cœlo clariſſimè conſpicerentur, ut notavit D. *Joſhua Childrey in Catalogo Eclipſium nuper edito.*

Eclipſis Solis totalis in Anglia, an. Chriſti 1140.

Tempus medium veræ ☌ fuit *Londini* hor. 1 2′ 29″, tempus apparens hor. 1 1′ 44″, *Malmesburiæ* verò, quæ 8 horæ ſcrupulis occidentalior eſt, hor. 0 53′ 44″, quo tempore ☉ & ☽ erant in gr. 6 41′ 48″ ♈, Aſcenſio recta veri loci Solis gr. 6 8′, medium Cœli gr. 21 11′ ♈, angulus meridianus gr. 67 54′, altitudo M. C. gr. 46 41′ altitudo Nonageſimi gr. 50 32′, diſtantia ☉ à Nonageſimo ad Occaſum gr. 34 1″, parallaxis Horizontalis ☽ à ☉ 58′ 22″, parallaxis longitudinis 25′ 12″, latitudinis 37′ 6″.

Tanta Solis defectio fuit, ut ſtellæ multis paſſim Cœli locis effulſerint, aeriſq; fuit ea temperies qualis eſt incerta luce ſub crepuſculo.

Cumq; in Quadrantem Zodiaci occidentalem hæc Luminarium ☌ incidat, erit ad horam ſubſequentem, nempe hor. 1 53′ 44″. angulus meridianus gr. 70 48′. altitudo medii Cœli gr. 52 17′ angulus Eclipticæ & Horizontis gr. 54 42′. elongatio Solis à Nonageſimo, gr. 44 30′ ad occaſum, Parallaxis longitudinis 33′ 23″, latitudinis 33′ 43″, motus horarius Lunæ verus 35′ 37″, viſus 27′ 26″, Intervallum itaq; veræ & viſæ ☌ 55′ 7″ add. Tempus ergo viſæ ☌ incidit in *Martii* diem 20, hor. 1 48′ 51″.

Hoc verò tempore eſt angulus meridianus gr. 70 31′ altitudo medii Cœli gr. 51 52′, altitudo Nonageſimi gr. 54 24′, elongatio Solis à Nonageſimo gr. 43 39′, Parallaxis longitudinis 32′ 45″, latitudinis 33′ 59″, merid. latitudo ☽ vera 34′ 47″ borea, latitudo viſa 0′ 48″ etiam borea, Semidiameter ☉ 16′ 17″, Semidiameter ☽, 16′ 44″, Summa 33′ 1″, pars deficiens, 32′ 13″, digiti ecliptici 11 52′. In locis verò *Angliæ* ſeptentrionalioribus Eclipſis erat totalis & terribilis valde, digitorum 12 10′: non mirum eſt itaq; ſi ſtellæ in Cœlo clariſſimè viderentur.

Altera eclipſis Sol. valde terribilis in Anglia, an. Chriſti 1185. quæ in locis Britanniæ borealioribus omnino erat totalis

11. Anno Chriſti 1185, *Feſto die S. Philippi & Jacobi*, Sol medio pene die, Lunæ interventu, impeditus, ſedem in Cœlis derelinquiſſe videtur. Sed quia locus in *Anglia* ubi hoc modo apparuit, ab obſervatore non eſt adſcriptus, Calculum adhibebimus ad Horizontem *Eboraci*, ſub longitudine gr. 23 18′ & latitudine gr. 54 0′, *Joſhua Childrey* in Catalogo eclipſium.

Tempus

Tempus apparens veræ ☌ factum eſt *Londini*, hor. 0 48′ 38″, *Eboraci* verò, quæ horæ ſcrupulis 4 occidentalior eſt, horis à meridie 0 44′ 38″, quo tempore ☉ erat in gr. 17 29′ 15″ ♉, aſcenſio recta med. Cœli gr. 56 9′; medium Cœli in ecliptica gr. 28 25′ ♉, angulus meridianus gr. 77 9′, altitudo M. C. gr. 55 52′, angulus Eclipticæ cum Horizonte gr. 56 50′, elongatio ☉ à Nonageſimo gr. 19 30′ ad occaſum; hinc dabitur parallaxis longitudinis 16′ 20″, latitudinis 31′ 59″.

Sed quia hæc Synodus Ecliptica facta eſt in Quadrante eclipticæ occidentali, ergo diviſâ Parallaxi longitudinis tempore veræ ☌ per motum horarium viſum 27′ 13″, habebimus intervallum inter veram & viſam ☌ hor. 0 36′ 0″ add. hinc viſa Synodus Luminarium erit *Eboraci*, hor. 1 20′ 38″ poſt meridiem; tunc temporis eſt medium Cœli gr. 7 1′ ♊, angulus merid. gr. 80 20′, altitudo M. C. gr. 57 34′, altitudo Nonag. gr. 58 5′, diſtantia ☉ à Nonag. gr. 25 36′, Parallaxis longitudinis 21′ 26″, latitudinis 30′54″ in auſtrum, latitudo ☽ vera 34′ 0″, viſa 3′ 6″ boreâ, Semidiameter ☉ 16′ 6″, Lunæ 16′ 44″, Aggregatum ſemidiametrorum 32′ 50″, pars deficiens 29′ 44″, digiti ecliptici 11 5′. Itaq; ☉ fere totus à mortalibus obtectus erat, vix alitèr quàm refert Obſervator.

Eclipſis ☉ centralis in quibuſdam Angliæ locis anno Chriſti 1191.

12. Anno Salvatoris Jeſu Chriſti 1191, die 23 *Junii*, facta eſt eclipſis Solis, quæ horâ ſeptimâ ab ejus ortu incipiebat (ut teſtatur *Matbeus Pariſ.*) & duravit tres quaſi horas. In medio eclipſis tenebræ fuerant tantæ in quibuſdam *Angliæ* locis, ut ſtellæ in Cœlo viderentur. Vide *Catalogum* præfatum Amici noſtri *Joſhuæ Childrei*.

Totalis Solis eclipſis facta anno 1191. Ac Luna in Apogæo tamen fuit. Kepler in Aſtron. opt. pag. 295.

Tempus apparens veræ ☌ accidit *Londini*, die 22 *Junii*, hor. 23 11′ 7″, quo tempore ☉ & ☽ conjuncti ſunt in gr. 7 33′ 53″ ♋, medium Cœli in gr. 26 22′ ♊, angulus meridianus 88 26′, altitudo med. Cœli gr. 61 56′, Nonageſimi gr. 61 57′, elongatio ☉ à Nonageſimo gr. 10 22′ ad ortum, Parallaxis Horizontalis Lunæ à Sole 53′ 43″, parallaxis longitudinis 8′ 31″, latitudinis 25′ 16″.

Ad ſemihoram ante veram ☌, nempe hor. 22 41′ 7″, eſt medium Cœli in Ecliptica in gr. 19 27′ ♊, angulus meridianus gr. 85 27′, altitudo medii Cœli gr. 61 34′, Nonageſimi gr. 61 40′, elongatio ☉ à Nonageſimo gr. 15 38′, parallaxis longit. 12′ 44″, latit. 25′ 30″. Differentia parallaxeos longit. 4′ 13″, verus ſemihorarius motus 13′ 51″, ergo ſemihorarius motus viſus 9′ 38″, atq; hinc colligitur intervallum inter veram & viſam ☌ 26′ 31″ ſubt. Cadit itaq; viſa Luminarium ☌ hor. 22 44′ 36″, & tunc temporis reperitur Parallaxis longit. 12′ 15″, latit. 25′ 28″, lat. ☽ vera 27′ 4″ bor. lat. viſa 1′ 36″ Bor. Semidiameter Solis 16′ 3″, Semidiameter Lunæ 15′ 27″, Summa 31′ 30″, pars deficiens 29′ 54″, ac proinde colliguntur digiti ecliptici 11 11′, & in locis *Angliæ* ſeptentrionalioribus erat eclipſis centralis digitorum 11 47′. Calculus itaq; noſter cum obſervatione ad amuſſim convenit.

Mirabilis eclipſis Sol. Conſtantiæ obſervata, an. 1415. quo tempore Sol totus defecit, Lunâ circa perigæum exiſtente. Kepler. ibid.

13. Anno Domini Salvatoris 1415, die 7 *Junii*, horâ ſextâ matutinâ, conſpecta eſt Eclipſis Solis *Conſtantiæ*, quæ tanta fuit, ut Stellæ in Cœlo, velut noctu, viderentur, & aves ſubitâ caligine territæ, paſſim è ſublimi in terram deciderint. *Eraſmus Reinboldus in Commentariis* ſuper *Theoricas Purbachii*, *ex Scriptore Hiſtoriæ Polonicæ.*

Tempus medium veræ ☌ fuit *Londini*, die 6 *Junii*, hor. 18 54′ 57″, tempus apparens hor. 18 54′ 18″, *Conſtantiæ* verò, (quæ removetur à *Londino* ad ortum horæ ſcrup. 37′) hor. 19 31′ 18″, ad quod tempus Luminaria ſubſunt gr. 23 54′ 39″ ♊, medium Cœli gr. 17 34′ ♈, angulus meridianus gr. 67 28′, altitudo med. Cœl. gr. 49 18′, angulus eclipticæ cum horizonte gr. 52 58′, elongatio Solis à Nonag. gr. 48 6′, paral. Horizontalis Lunæ à Sole 58′ 15″, hinc emergit Parallaxis Longitudinis 34′ 36″, latitudinis 35′ 5″.

Ad horam 1 antecedentem, nempe 18 31′ 18″, datur med. Cœli gr. 1 15′ ♈, angulus meridianus gr. 66 29′, altitudo med. Cœli gr. 42 53′, altitudo Nonag. gr. 47 47′, diſtantia Solis à Nonag. gr. 59 22′, Parallaxis longitudinis 37′ 7″, latitudinis 39′ 8″ in Auſtrum. Jam ſi à motu horario ☽ à ☉ vero 35′ 19″, auferatur differentia parallaxeωs 2′ 31″, relinquit motum horarium viſum 32′ 48″, per quem diviſâ Parallaxi longitudinis tempore veræ ☌, colligitur intervallum inter veram ☌ & viſam hor. 1 3′ 18″ ſubtr. ac proinde viſa Conjunctio erat *Conſtantiæ*, hor. 18 28′ 6″, quo quidem tempore datur

Medium Cœli gr. 0 21′ ♈, & ejus altitudo gr. 42 31′, angulus meridianus gr. 66 29′, altitudo Nonag. gr. 47 29′, elongatio ☉ à Nonageſimo gr. 60 0′, parallaxis longitudinis 37′ 11″, latitudinis 39′ 22″ auſtr. latitudo ☽ vera 39′ 25″ borea, latit. viſa 0′ 3″ borea, Semidiameter ☉ 16′ 3″, ☽, 16′ 41″, Summa ſemidiametrorum 32′ 44″, pars deficiens 32′ 41″, Digiti eclipt ici 12 13′ fere.

Erat ergo hæc Eclipſis Solis totalis cum mora, adeo ut ſtellæ velut noctu, clariſſimè ibi conſpicerentur, omnibus modis ut obſervavit ille Scriptor Hiſtoriæ Polonicæ.

14. Anno Chriſti 1462, die 21 *Novembris*, conſpecta eſt Eclipſis Solis *Viterbii*, circa meridiem. Principium non obſervatum; ſed cum ☉ eſſet in meridie, habebat altitudinem gr. 26. Eclipſati erant Digiti 2, in fine Eclipſeos ☉ habebat pomeridianam altitudinem gr. 24 36′, quantum conjecturâ potuit colligi; videbatur tertia pars temporis totius Eclipſis tranſiviſſe à principio Eclipſis ad primam conſiderationem. Nam paulò ante hanc, quæ erat præciſè in meridie, conſpectus fuit ☉ ab objectu ☽ liber. *Regiomontanus in Torquelo.* Obſervatio Regiomontani ad eclipſ. Solis anno 1462.

Tempus medium veræ ☌ contigit *Londini*, die 20 *Novembris*, hor. 23 30′ 40″, quo quidem tempore luminaria tenent gr. 8 7′ 12″ ♐, Reductio 1′ 10″ add. tempus Reductionis 2′ 5″, ſubtr. Æquatio temporis 7′ 5″ add. adeoq; tempus apparens veræ ☌ fuit *Londini*, hor. 23 35′ 40″, *Viterbii* verò (quæ ſcrup. 49′ horæ orientalior eſt) hor. à meridie 0 24′ 40″. Tuncque datur med. Cœli 13° 52′. ♐, angulus meridianus gr. 83 6′, altitudo med. Cœli gr. 25 3′, angulus Eclipticæ cum Horizonte gr. 25 55′, parallaxis Horizontalis Lunæ à Sole 57′ 11″, elongatio Solis à Nonageſimo gr. 8 40′ ad ortum, parallaxis longit. 3′ 46″, latit. 51′ 26″.

Cumq; ☌ ante 90 Eclipticæ gradum in Quadrantem Zodiaci Orientalem accidit, itaq; ſcrup. horæ 15 citiùs, *viz.* hor. 0 9′ 40″, erat angulus meridianus gr. 81 39′, altitudo medii Cœli gr. 25 30′, altitudo Nonageſimi gr. 26 45′, elongatio ☉ à Nonag. gr. 14 40′, Parallaxis longitudinis 6′ 31″, latit. 51′ 4″.

Motus ☽ à ☉ verus pro 15′ horæ 8′ 22″, differentia longitudinis 2′ 45″ ſub. Motus ☽ à ☉ viſus tempore dato 5′ 37″, atq; hinc colligitur intervallum inter veram & viſam ☌ 10′ 3″ ſubtr. ac proinde viſa ☌ *Viterbii*, hor. 0 14′ 37″, & tunc temporis datur Parallaxis longit. 5′ 36″, latit. 51′ 11″, latit. ☽ vera 25′ 21″ borea, viſa 25′ 50″ auſtrina, Semidiametrus Solis 16′ 36″, Lunæ 16′ 26″, Summa ſemidiametrorum 33′ 2″, pars deficiens 7′ 12″, ergo digiti eclipt. colliguntur 2 36″, quæ cum Obſervatione ad amuſsim conveniunt.

Scrupula Incidentiæ 20′ 35″, tempus incidentiæ hor. 0 54′ 26″, Intervallum inter viſam ☌ & med. Eclipſis 6′ 0″ ſubtr. hinc med. Eclipſis fuit hor. 0 8′ 37″, Initium horæ ſcrup 45′ 49″ ante meridiem. Cum igitur ☉ eſſet in meridie, tranſierat plenè tertia pars totius durationis Deliquii. Finis erat hor. 1 3′, cum Solis altitudo eſſet gr. 24 ½ circitèr, omnino ut *Johannes Regiomontanus* obſervavit.

Eclipſis Solis anno 1485 à Bern. Walthero obſerv.

15. Anno Chriſti 1485, die 16 *Mart.* fuit magna Eclipſis Solis, cujus medium *Bernardus Waltherus* conſpexit *Norimbergæ*, inter horas 4 & 5 pomeridianas, deficiebatq; tunc ab Auſtro digiti quaſi undecim. Vide *Obſerv. Aſtron. Lansbergi*, ex Obſervationibus *B. Waltheri.*

Tempus apparens veræ ☌ factum eſt *Londini*, hor. 2 2′ 38″, *Norimbergæ* verò hor. 2 50′ 38″, Luminaria in gr. 5 9′ 4″ ♈, medium Cœli gr. 19 51′, ♉, angulus meridianus gr. 74 18′, altitudo medii Cœli gr. 58 19′, angulus Eclipticæ & Horizontis gr. 59 38′, elongatio Solis à Nonageſimo gr. 54 12′ ad occaſum, Parallaxis longitudinis 40′ 51″, latitudinis 29′ 31″.

Ad horam 1 ſuccedentem, nempe hor. 3 50′ 38″, erat in medio Cœli gr. 4 24′ ♊, angulus meridianus gr. 79 20′, altitudo Nonageſimi gr. 62 12′, diſtantia Solis à Nonageſimo gr. 64 54′ horizontalis parallaxis Lunæ à Sole 58′ 22″, parallaxis longitudinis 46′ 45″, latitudinis 27′ 13″, differentia parallaxeos longitudinis 5′ 54″, horarius motus Lunæ à Sole verus 35′ 36″, viſus 29′ 42″, atq; hinc intervallum inter veram & viſam Conjunctionem hor. 1 21′ 35″ addendum, ergo viſa Conjunctio conſpecta eſt *Norimbergæ*, hor. 4 12′ 13″, quo tempore datur medium Cœli gr. 9, 31′ ♊, angulus meridianus gr. 81 19′, altitudo med. Cœli gr. 62 31′, altitudo Nonageſimi gr. 62 51′, elongatio ☉ à Nonageſimo gr. 68 48′, Parallaxis longitudinis 48′ 25″, parallaxis latitudinis 26′ 38″ auſtrina, latitudo ☽ vera 25′ 0″ borea, latitudo viſa 1′ 38″ auſtrina, Semidiameter ☉ 16′ 19″, Semidiameter ☽ 16′ 44″, Summa 33′ 3″, pars deficiens 31′ 25″, Digiti eclipticei ab Auſtro 11 33′, vix aliter quam *Bernardus Waltherus* obſervavit *Norimbergæ.*

Eclipſis Solis anno 1544. à Gemma Friſio conſpecta. Ecl. Friſius obſervavit (per foramen) 10 dig falſus itaq; eſt, & major fuit defectus. Functius undecim dig. æſtimavit, ſed & hunc oculi feſellerunt, omnino parùm ſuperfuit, & alicubi totus Sol latuit. Hine Functius diem ait cœpiſſe iterum noctéſcere, tanquam in crepuſculum veſpertin. & volucres Cœli quæ 1ª luce fuerant hilares cum tantæ ſubitò occurrerent tenebræ, obtumeſcere cœpiſſe.

16. Anno Chriſti 1544, die 24 *Januarii*, fuit eclipſis magna Solis, quam *Gemma Friſius* conſpexit *Lovanii*, ſub longitudine gr. 29 20′, & latitudine gr. 50 50′, horâ 8 53′ plus minus ante medium diem, deficiebantq; tunc Digiti decem à parte inferiori. *Gemma Friſius in Aſtronomico Radio, cap.* 18.

Tempus medium fuit *Lovanii*,. die 23 *Januarii*, hor. 21. 2′ 33″, tempus verò apparens hor. 20 57′ 16″, quo tempore Luminaria ☉ & ☽ erant in gr. 13 36′ 22″ ♒, medium Cœli gr. 0 22′ ♑, Angulus meridianus gr. 89 50′, Altitudo med. Cœli gr. 15 39′, altitudo Nonageſimi gr. 15 39′, elongatio Solis à Nonag. gr. 42 39′, Parallaxis horizontalis ☽ à ☉ 57′ 6″, Parallaxis longitudinis 10′ 26″, latitudinis 54′ 59″.

Ad 30′ horæ citiùs, *viz.* hor. 20 27′ 16″, erit medium Cœli gr. 23 29′ ♐, angulus meridianus gr. 87 11′, altitudo M. C. gr. 15 49′, Nonageſimus gr. 13 38′ ♐, altitudo Nonag. gr. 16 3′, elongatio Solis à Nonag. ad ortum gr. 59 56′, parallaxis longitudinis 13′ 40″, latitudinis 54′ 52″. Semihorarius motus ☽ à ☉ verus 16′ 41″, differentia parallaxis longitudinis ſubtr. 3′ 14″, ſemihorarius motus ☽ à ☉ viſus 13′ 27″, datur itaq; intervallum inter veram & viſam ☌ 23′ 16″ ſubtrahendum; acproinde viſa ☌ *Lovanii*, hor. 20 34′ 0″, ad quod quidem tempus erit parallaxis longitudinis 12′ 56″, parallaxis latitudinis 54′ 54″, latitudo ☽ vera 54′ 54″ borea, ſemidiameter ☉ 16′ 34″, ſemidiameter ☽ 16′ 24″, ſumma 32′ 58″, digiti 11 56′.

Erat ergo Sol centralitèr & pene eclipſatus totalitèr, *Gemma* tamen notavit

tantum

tantum digitos 10, at non in ipſo tempore medii deliquii (ut rectè obſervavit *P. Lansbergius*) ſed cum Sol aliquandiu repleri cœpiſſet: nam medium eclipſis contigit *Lovanii*, hor. 8 34′ ante meridiem, ita ut Obſervatio ſit facta ad trientem horæ poſt maximam obſcurationem, quando ☉ non ultra 10 digitos, eclipſin patitur, ſed in medio Eclipſeos Sol fere totus fuit obſcuratus, ut *Functius* & alii conſpexerunt.

17. Anno Chriſti 1560, die 21 *Augusti*, circa meridiem, contigit eclipſis Solis, in qua interponebatur Luna directè inter viſum ac Solem (ut obſervavit *Clavius Conimbriæ in Luſitania*) ita ut totum *Solem* non modico temporis intervallo contegeret, eſſentq; tenebræ quodammodo majores quam nocturnæ. Neq; enim ubi pedem quis poneret, videre poterat, clariſſiméq; in Cœlo ſtellæ apparebant (& quod mirabile erat) aves ex aëre in terram præ horrore obſcuritatis decidebant. *Clavius in Comment. ſuper Caput 4. Joannis de Sacro Boſco.*

Eclipſis Solis valde terribilis, in qua, non modico temporis intervallo, Sol totus defecit, ut rectè obſervavit Clavius ſuper cap. 4. Joannis de Sacro Boſco.

Quoniam hoc Solare deliquium prorſus mirabile eſt, operæ-pretium mihi videtur Calculum ejus apponere, ut elucescat veritas Calculi cum obſervatu.

Tempus apparens veræ ☌ *Londini*, contigit hor. 0 24′ 3″ P. M. *Conimbriæ* autem (quæ occidentalior eſt ſcrup. horæ 33′) horis ante meridiem 11 51′ 3″, quo tempore verus Solis locus erat in gr. 7 45′ 46″ ♍, altitudo Nonageſimi gr. 61 41′, elongatio ☉ à Nonageſimo gr. 14 42′, parallaxis longitudinis ☽ à ☉ 12′ 51″, parallaxis latitudinis 27′ 19″. Quoniam autem eclipſis accidit in Quadrante Cœli orientali, ideo ad unam horam ante veram ☌ invenitur parallaxis longitudinis 23′ 27″, latitudinis 23′ 21″, differentia parallaxis longitudinis 10′ 36″, horarius motus ☽ à ☉ verus 34′ 9″, viſus 23′ 33″, itaq; apparens Synodus antecedebat veram ſcrup. horæ 32′ 44″, ac proinde viſa Luminarium ☌ erat *Conimbriæ* hor. 11 18′ 19″, datur tunc parallaxis longitudinis ☽ à ☉ 18′ 35″, parallaxis latitudinis 25′ 5″ auſtrina, latitudo ☽ vera 25′ 1″ borea, latitudo viſa 0′ 4″ auſtrina, Semidiameter ☉ 16′ 12″, ☽ 16′ 31″, ſumma ſemidiametrorum 32′ 43″, digiti obſcurati 12 6′, deficit itaq; totus Sol *Conimbriæ*, cum mora, quemadmodum *Clavius in Commentariis* annotavit.

Conſpecta eſt etiam hæc Eclipſis *Bruxellæ in Brabantia*, ubi altitudo Solis in initio Eclipſis obſervata fuit gr. 45 30′, in fine gr. 42 30′ per quadrantem, cujus Peripheria quinque pedum. Erat ergo in Horizonte *Bruxellenſi τῆς ἀναπαρόντος*, horâ primâ 48′ proximè. *Stadius in Ephemeride* anni 1560, *pag.* 2.

Aliæ obſervationes hujus Eclipſeos.

Obſervârunt quoq; hanc Eclipſin *Tilemannus Stella*, & *Paulus Fabricius Viennæ Auſtriæ*, ubi initium apparuit horâ à meridie 0 50′, & finis hor. 2. 15′ 3 deficitq; ☉ in medio Eclipſis digitos 5 ½. *Gerrardus Mercator in Chronologia.*

18. Anno Chriſti 1567, *Aprilis* die 9. *Chriſtophorus Clavius* denuò conſpexit alteram Solis eclipſin *Romæ*, in qua rurſus ☽, etſi inter viſum ac ☉ interjiciebatur, non totum tamen Solem obſcurabat, ut in priori, ſed relinquebatur in Sole circulus quidam exilis undiq; totam Lunam ambiens. *Clavius in Commentariis ſuper 4 Caput Sac Boſci.*

Defectio Solis mirabilis Romæ conſpecta, anno 1567.

Tempus apparens veræ ☌ evenit *Londini*, hor. 10 42′ 1″ à media nocte, *Romæ* autem hor. 11 33′ 1″, ad quod tempus fuit ☉ in gr. 28 37′ 5″ ♈, Anomalia latitudinis ☽ ſig. 5, gr. 24 39′ 26″, medium Cœli in ecliptica gr. 21 28′, altitudo med. Cœli gr 56 22′, altitudo Nonageſimi gr. 59 7′, elongatio Soli à Nonageſimo gr. 6. 52′, parallaxis horizontalis ☽ à ☉ 56′ 0″, parallaxis longitudinis 5′ 45″.

Quia hæc Luminarium congreſſio contigit in occidentali Quadrante Cœli, erat parallaxis longitudinis ad ſemihoram poſt ☌ veram 10′ 49″, adeo ut emergat Semihorarius motus ☽ à ☉ viſus 10′ 42″, apparens igitur Synodus ſequebatur veram 16′ 6″, ac proinde viſa ☌ fuit *Romæ*, horis à media nocte 11 49′ 7″. Datur tunc Semi-

Semidiameter ☉ 16′ 13″, ☽ 16′ 4″, Summa Semidiametrorum 32′ 17″, parallaxis longitudinis 8′ 28′, parallaxis latitudinis 27′ 39″, latitudo ☽ vera 27′ 9″ borea, latitudo viſa 0′ 30″ auſtrina, pars deficiens, 31′ 47″, Digiti ecliptici 11 46′. Quare non deficit totus ☉, ut in Eclipſi, 1560, ſed Circulus quidam exilis Lunam circumcirca lucebat, omnibus modis ut *Clavius Romæ* conſpexit

Obſervatio Tychon. Brahæi.

Obſervavit quoq; hoc Solare Deliquium *Tycho Brahæus Roſtochii* ad littus maris Balthici, ejuſq; medium deprehendit in ipſo quaſi meridie. *Keplerus in Aſtron. Optica, pag.* 297, *& Lansbergius Obſervat. Aſtron. fol.* 113.

Obſervatio Cornel. Gemmæ.

Eandem Eclipſin animadvertit *Cornelius Gemma Lovanii*, cujus initium invenit hor. 10 12′ ante meridiem, & finem paulo poſt horam à meridie 0 ½. In medio Eclipſis defecerunt Digiti fere 9 ab Auſtro. *Cornelius Gemma Coſmocritices lib.* 11. *pag.* 55.

Ecl. ☉ à M. Mœſtlino obſ. anno 1590.

19. Anno Chriſti 1590, die 21 *Julii*, *Michael Mæſtlin Tubingæ* conſpexit Solis Eclipſin, cujus medium fuit horis à media nocte 7 36′, radio Solis per tegulas immiſſo, ſub amplo & obſcuro tecto. *Kepler. in Aſtron. Optic. pag.* 360, 406, & 421.

Tempus apparens veræ ☌ erat *Londini*, hor. 8 15′ 39″, à media nocte in gr. 7 30′ 17″ ♌, *Tubingæ* autem (quæ orientalior eſt ſcrupulis horæ 40′) horis 8 55′ 39″, quo tempore eſt aſcenſio ☉ recta gr. 129 55′, angulus meridianus gr. 87 33′, altitudo M.C. gr. 64 50′, angulus Eclipticæ cum Horizonte gr. 64 51′, elongatio ☉ à Nonageſimo gr. 42 0′, parallaxis horizontalis ☽ à ☉ 53′ 57″, paral. longitudinis 32′ 41″, latitudinis 22′ 55″.

Ad horam unam antecedentem, nempe hor. 7 55′ 39″, datur angulus meridianus gr. 81 41′, altitudo med. Cœli gr. 63 31′, altitudo Nonageſimi gr. 63 49′, diſtantia ☉ à Nonageſimo gr. 52 54′, parallaxis longitudinis 38′ 37″, latitudinis 23′ 48″, horarius motus ☽ à ☉ verus 28′ 4″, viſus 22′ 8″, hinc colligitur intervallum inter veram & viſam ☌ correctam hor. 1 26′ 47″ ſubtr. ac proinde viſa ☌ erat horis à media nocte 7 28′ 52″.

Ad hoc tempus eſt angulus merid. gr. 79 13′, altitudo M. C. gr. 62 29′, altitudo Nonag. gr. 63 1′, Parallaxis longitudinis 40′ 39″, parallaxis latitudinis 24′ 29″, latitudo ☽ vera 16′ 23″ borea, latitudo viſa 8′ 6″ auſtr. Semidiameter ☉ 16′ 5″, Lunæ 15′ 30″, Summa ſemidiametrorum 31′ 35″, pars deficiens 23′ 29″, hinc proveniunt digiti ecliptici 8 46′, vix aliter quàm Obſervatum eſt, nam Obſervatio habet digitos 8 36′.

Ecl. Solis terribilis in Ang. ὅτε ἥλιος … σύμπας ἐξέλιπε, Solq; totus defecit.

20. Anno Chriſti 1598, die *Februarii* 25, circa meridiem, eclipſis Solis obſervata fuit *Gratii Styriæ*, *Uraniburgi*, *& in Juttia*, *Regni Daniæ Provincia*, uti memorat *Joannes Keplerus in Tab. Rudolph. fol.* 110. & *ſeq.*

DIES SATURNI TENEBROSUS.

Hæc ☉ ecl. maximâ admiratione, & animi perturbatione fuit conſpecta in *Septentrionalioribus Angliæ partibus*, ubi Populi inſcii & imperiti, cauſam ejus neſcientes, ſtupefacti fuerunt, propter tenebras caliginoſas ibidem inexpectatas, adeo ut dies ille hucuſq; appellatur *Dies Saturni tenebroſus*. Atqui quoniam locus *Angliæ* in quo hæc eclipſis quaſi totalis apparuit, expreſsim non eſt adſcriptus, calculum Eclipſeos ad Horizontem *Dunelmenſem*, quæ removetur à *Londino* ſcrup. 6′ ad occaſum, & habet latitudinem gr. 54 47′, accommodabimus.

Tempus medium veræ ☌ accidit *Londini*, die 24 *Februarii*, hor. 21 56′ 14″, quo tempore Sol erat in gr. 16 44′ 47″ ♓, Argumentum latitudinis gr. 10 7′ 3″, datur itaq; tempus veræ ☌ h. 21 56′ 16″, *Dunelmi* verò h. 50′ 16″, Ad hoc tempus invenitur Parallaxis Longit. 2′ 53″, parallaxis latit. 52′ 17″

Quia autem hæc ecliptica Luminarium Synodus contigit in occidentali Quadrante Cœli, dabitur ad Quadrantem horæ poſt veram ☌, parallaxis longit. 4′ 38″, latit. 51′ 39″, hinc viſa ☌ cadit *Dunelmi*, hor. 21. 56′ 42″, datur tunc parallaxis longitudinis 3′ 38″, parallaxis latitudinis 52′ 1″ in auſtrum,

lat. ☽ vera 52′ 58″ bor. lat. ☽ à ☉ viſa 0′ 57″ etiam borea, Semidiameter Solis 16′ 25″, Lunæ 16′ [illegible]″, Summa Semidiametrorum 32′ 54″, ex quibus demptâ latitudine viſa 0′ 57″, relinquitur pars deficiens 31′ 57″, digiti ecliptici 11 41′, Calculus itaq; noſter cum obſervatu ad amuſſim congruit.

In *Agro Rutlandienſi* juxta *OAKHAM*, ſub latitudine gr. 52 42′, vix aliter apparuit, erant enim tenebræ tantæ quando Populi ad *Forum* ibant, ut Nox illis videretur eſſe. Tabulæ noſtræ conſentiunt, nam tempus apparens veræ ☌ fuit hor. 21 54′, 16″, Intervallum veræ & viſæ ☌ 4′ 46″ add. tempus viſæ ☌ hor 21 59′ 2″, parallaxis longitudinis 2′ 41″, latitudinis 51′ 14″, lat. ☽ vera 52′ 53″, lat. viſa 1′ 39″ borea, pars deficiens 31′ 15″, digiti 11 26′.

In Rutlandia Authoris patriâ, vix aliter apparuit.

Hanc etiam Eclipſin obſervavit *Joannes Keplerus Gratii Styriæ* ſub longitudine gr. 38 20′, & latitudine gr. 47 2′, notavitq; in medio eclipſis digitos eclipticos fere 9. *Tab. Rudolph.* 110.

Obſervatio Joan. Kepleri.

Tempus apparens veræ ☌ *Gratii* factum eſt hor. 22 52′ 16″, datur tunc parallaxis longitudinis 7′ 11″, latitudinis 46′ 7″. At quia hæc Luminarium Synodus in Quadrante Occidentali Eclipticæ ſe offert, igitur ad ſemihoram poſt veram ☌, parallaxis longitudinis erat 11′ 48″, latitudinis 44′ 16″, quocirca Semihorarius motus ☽ à ☉ viſus datur 12′ 9″, Intervallum veræ & viſæ ☌ 17′ 30″, ac proinde viſa Conjunctio cadit in hor. 23 9′ 46″, quo tempore parallaxis longitudinis fuit 9′ 51″, parallaxis latitudinis 45′ 3″ auſtrina, latitudo ☽ vera 53′ 18″ borea, latitudo viſa 8′ 15″, pars deficiens 24′ 39″, ergo proveniunt digiti ecliptici 9 0′, haud aliter quam *Joannes Keplerus* obſervavit.

21. Anno Chriſti 1600, die 30 *Junii* fuit eclipſis ☉, cujus medium obſervavit *Joannes Keplerus* ſub obſcura ſcena *Gratii Styriæ* circa horam à meridie 1 48′, deficiebantq; tunc ab Auſtro digiti 7 10′, *Kepler. in Aſtron. optic. pag* 427. 428, 429, & 430.

Ecl. Solis partialis Gratii Styriæ obſer. anno 1600. à J. Keplero.

Tempus medium veræ ☌ fuit *Londini* hor. 0 37′ 0″, quo tempore locus Luminarium eſt in gr. 18 11′ 23″ ♋, Anomalia latitudinis ſig. 5. gr. 26 53′ 47″, reductio Orbitæ ☽ ad eclipticam 0′ 46″ add. locus ☽ in ecliptica in gr. 18 12′ 9″ ♋, tempus correctum hor. 0 35′ 35″, Æquatio temporis 6′ 6″ ſubtr. tempus itaq; apparens veræ ☌ contigit *Londini*, hor. 0 29′ 29″, *Gratii* verò, quæ ſcrupulis horæ 56′ orientalior eſt, horâ à meridie 1 25′ 29″, tunc erat medium Cœli in gr. 8 38′ ♌, angulus meridianus gr. 74 47′, altitudo M. C. gr. 61 8′ angulus eclipticæ cum Horizonte gr. 62 14′, diſtantia ☉ à Nonageſimo gr. 12 13″ ad Occaſum, parallaxis Horizontalis ☽ à ☉ 56′ 27″, parallaxis longitudinis 10′ 34″, latitudinis 26′ 18″.

Quia verò Sol tempore medii Eclipſeos erat in Quadrante occidentali, ergo datur ad ſemihoram poſt ☌ veram, parallaxis longitudinis 14′ 58″, latitudinis 27′ 43″, ſemihorarius motus ☽ à ☉ verus 16′ 9″, viſus 11′ 45″, ergo conjunctio Luminarium viſa ſequebatur veram 26′ 59″, ac proinde viſa ☌ erat *Gratii*, horâ 1 52′ 28″, quo tempore angulus meridianus erat gr 72 47′, altitudo medii Cœli gr. 59 15′, Nonageſimi altitudo gr. 60 46′, elongatio ☉ à Nonageſimo gr. 17 10′, parallaxis longitudinis 14′ 32″, latitudinis 27′ 34″, latitudo ☽ vera 14′ 52″ borea, viſa 12′ 42″ auſtrina, Semidiameter Solis 16′ 3″, Lunæ 16′ 11″, ſumma ſemidiametrorum 32′ 14″, pars deficiens 19′ 32″, digiti 7 18′. Habet *Kepl.* dig. 7 ⁞. *pag.* 430.

Intervallum inter viſam ☌ & maximam obſcurationem eſt 2′ 48″ ſubtr. adeoq; medium eclipſis contigit *Gratii*, hor. 1 49′ 40″, totus itaq; Calculus cum *obſervatione Kepleriana* egregiè convenit, nam initium erat hor. 12′ 37′ 44″, finis hor. 2 57′ 30″. *Vide Aſtron. Optic. pag.* 426, & 427.

Hæc Solis ecl. anno 1601, maximâ admiratione conſpecta eſt à Piſcatoribus in littore Bergarum Norvegiæ.

22. Anno Chriſti 1601, die 14 *Decembris*, obſervata eſt eclipſis Solis à Piſcatoribus in *littore Bergarum Norvegiæ* (ut monſtravit Epiſcopus loci iſtius *M. Andreas Foſſius*) qui maxima cum admiratione conſpexerunt totum

totum corpus Lunare intra Solis complexum comprehendiſſe, ut circumcirca Lunam ſeſquialtero digito æqualitèr quaſi emineret, *Longomont. lib*: 1. *Theoric. cap.* 9. *& Lansbergius obſervat. Aſtron. fol.* 116. Latitudo loci gr. 60 30'.

Tempus apparens veræ ☌ fuit *Londini*, hor. 0 51' 20", *Littore* verò ad *Bergas Norvegiæ*, hor 1 11' 20". Ad hoc tempus erat locus Solis in gr. 2 54' 1" ♈, Medium Cœli gr. 19 20' ♈, Nonag. gr. 7 8' ♓, altitudo Nonageſimi gr. 11 2', paral. longit. 9' 12", latitud. 52' 22", Semihorarius motus ☽ à ☉ verus 13' 34", viſus 10' 23", Sol erat in Quadrante Eclipticæ occidentali, quare viſa Synodus ſequebatur veram 29' 47", & medium Eclipſis conſpectum fuit in Littore *Bergarum* hor. 1 37' 59", datur tunc aſcenſio recta med. Cœli gr. 297 41', medium Cœli in Ecliptica gr. 25 41' ♈, angulus meridianus gr. 79 26', altitudo M. C. gr. 8 25', altitudo Nonag. gr. 13 29', diſtantia Solis à Nonageſimo gr. 73. 52', paral. longitudinis 11' 55", latit. 51' 53", lat. ☽ vera 52' 1" borea, lat. Lunæ à Sole viſa 0' 8", Semidiameter Solis 16' 37", Semidiameter Lunæ 15' 22", differentia Semidiametrorum 1' 15", quæ ſcr. 1' 7" major eſt Latit. Lunæ viſâ, quare totum Lunare corpus intra Solis ambitum videbatur, & Sol ſeſquialtero fere digito prominebat, omnino ut à *Piſcatoribus* obſervatum fuit:

Kepleri obſervatio Pragæ Bohemorum facta.

Hanc quoq; Eclipſin conſideravit *Joannes Keplerus Pragæ Bohemorum*, invenitq; eclipſis medium circa horam à meridie 2 51', ipſumq; defectum digitis 9 ½ majorem. *Keplerus in Aſtronomia Optica, pag.* 433, *&* 434.

Defectio Solis 1605. Obſervat. Joannis Rotarii.

23. Anno Chriſti 1605, die 2 *Octobris*, conſpecta eſt eclipſis Solis, cujus medium animadverſum eſt *Middleburgi*, à Reverendo viro *Joanne Rotario*, quadrante horæ poſt horam primam à meridie, deficiebatq; tunc ab Auſtro plus quam dextans Diametri Solis, & minus quam deunx. Principium ob nubes obſervari non potuit, ſed finis obſervatus eſt, circitèr beſſe unius horæ poſt ſecundam pomeridianam.

Totus Sol defecit NEAPOLI.

Conſpecta quoq; eſt hæc Eclipſis *Neapoli* in *Italia*, deprehenſumq; iſtic loci totum Solem à Lunæ interpoſitu fuiſſe tectum. *Kep. Epit. Aſtron. pag.* 893.

Tempus apparens veræ Synodi Luminarium fuit *Londini*, hor. 1. 24' 47", *Neapoli* verò, hor. 2 24' 47", quo tempore Sol erat in gr. 19 6' 17" ♎, Anomalia latitudinis ſig. 0, gr. 9 29' 12", medium Cœli gr. 26 9' ♏, altitudo M. C. gr. 29 57', angulus Eclipticæ & Horizontis gr. 32 39', diſtantia Solis à Nonageſimo gr. 14 46' 22" ad occaſum, parallaxis longitudinis 7' 36", parallaxis latitudinis 48' 36", ſemihorarius motus Lunæ à Sole verus 17' 12", viſus 12' 57".

Sol erat in Quadrante Occidentali, adeoq; viſa ☌ ſequitur veram 18' 23", & medium eclipſis viſum eſt *Neapoli*, hor. 2. 43' 10". Datur tunc, angulus meridianus gr. 77 55', altitudo M. C. gr. 28 58', angulus Eclipticæ cum horizonte gr. 31 11", elongatio Solis à Nonageſimo ad occaſum gr 20 45', horizontalis parallaxis Lunæ à Sole 57' 44", paral. longit. 10' 35", latit. 49' 24" Auſtrina, Latitudo ☽ vera 50' 20" Borea, Latitudo viſa 0' 56" Borea, Semidiameter Solis 16' 23", Lunæ 16' 35", ſumma ſemidiametrorum 32' 58", pars deficiens 32' 3", digiti eclipticí 11 44'. Quare Sol fere totus *Neapoli* defecit, haud alitèr quam ibidem conſpectum eſt.

Eclipſis Solis anno 1612, à Longomontano obſervata.

24. Anno Chriſti 1612, die 20 *Maii*, accidit Solare Deliquium, cujus medium *Longomontanus* deprehendit circa hor. 11 20', Initium ſtatuit cum altitudo Solis eſſet circitèr gr. 51, finis ex calculo ejus erat hor. 12 24', ſed ex obſervatione erat productior, in medio eclipſis defecit Sol ad ſummum digitos octo à Borea. *Longomontanus lib.* 1. *Theoric. cap.* 9. *fol.* 312.

Tempus apparens veræ ☌ fuit *Londini*, hor. 22 29' 18", *Hafniæ* verò, quæ 52' horæ ſcrupulis orientalior eſt, horis à media nocte 11 21' 18", quo tempore Sol vero ſuo motu erat in gr. 9 8' 14" ♊, Argumentum latitudinis

ſig.

ſig. 0 gr. 9 8′ 14″, medium Cœli gr. 29 57′ ♉, angulus meridianus gr 77 41′ altitudo med. Cœli gr. 54 30′. angulus Eclipticæ & Horizontis gr. 55 26′ 7″, elongatio Solis à Nonageſimo gr. 0 31′ 38″ ad ortum, parallaxis longitudinis 0′ 25″, latitudinis 31′ 54″.

Ad quadrantem horæ ante veram ☌ datur parallaxis longitudinis 2′ 24″ parallaxis latitudinis 32′ 22″, motus Lunæ à Sole verus in ſcrup. 15 horæ 7′ 59″, viſus 6′ 0″, intervallum veræ & viſæ ☌ 1′ 4″ ſubt. Quare viſa Synodus contigit *Hafniæ*, hor. 11 20′ 14″ à media nocte. Ad hoc tempus datur

Parallaxis longitudinis Lunæ à Sole 0′ 34″, parallaxis latitudinis 31′ 56″ auſtrina, latitudo ☽ vera 40′ 24″ borea, ergo latitudo viſa 8′ 28″ etiam borea, Semidiameter ☉ 16′ 5″, ☽ 16′ 8″, Summa 32′ 13″, pars deficiens 23′ 45″, digiti eclipticì 8 51′, intervallum viſæ Conjunctionis & maximæ obſcurationis 1′ 50″ ſubt. adeoq; medium eclipſis hor. 11 18′ 24″, ſcrupula incidentiæ 31′ 5″, tempus incidentiæ hor. 1 17′, tempus repletioni hor. 1 13′. Cœpit ergo eclipſis hor. 10 1′, definit hor. 12 31′, vix alitèr quam obſervavit *Longomontanus*.

25. Anno Chriſti 1621, die 11 *Maii*, fuit eclipſis Solis, cujus medium Pater meus, *Vincentius Wingus*, deprehendit paolò ante horam 8 matutinam, quando Sol fere totus à Lunæ interventu obſcuratus fuit, adeo ut ſubitò contenebreſcat dies, & Stellæ in Cœlo clarè apparebant, ut ſæpiùs mihi indicavit.

Obſer. magnæ Eclipſis Solis à *Patre meo* facta, an. 1621 die 11 Maii.

Tempus apparens veræ ☌ contigit *Londini*, hor. 8 32′ 29″, à media nocte, *Luſſenhamiæ* verò, hor. 8 30′ 5″, quo tempore ☉ occupabat gr. 0 17′ 7″ ♊, argumentum latitudinis ſig. 5. gr. 22 30′ 3″, horarius motus Lunæ à Sole verus 30′ 54″, aſcenſio recta Solis gr. 58′ 6″, medium Cœli gr. 6 8′ ♈, altitudo M. C. gr. 39 47′, angulus meridianus gr. 66 36′, Nonageſimus gr. 1 38′ ♉, elongatio ☉ à Nonageſimo gr. 28 39′, altitudo Nonageſimi gr. 45 9′, parallaxis horizontalis ☽ à ☉ 55′ 37″, hinc emergit paral. longitudinis 18′ 54″, latitudinis 39′ 13″.

Sol verſabatur in Quadrante orientali eclipticæ, itaq; datur parallaxis longit. ad hor. 1. antecedentem 22′ 38″, paral. latit. 42′ 44″, motus horarius viſus 27′ 10″. Cadit itaq; viſa Luminarium Synodus hor. 7. 48′, vix alitèr quam obſervatum fuit.

Ad hoc tempus habetur parallaxis latitudinis 41′ 41″ auſtrina, lat. ☽ vera 41′ 7″ bor. lat. viſa 0′ 34″ auſtrina, Semidiameter Solis 16′ 5″, Lunæ 15′ 58″, Semidiametrorum Summa 32′ 3″, pars deficiens 31′ 29″, ergo erunt digiti eclipticì 11 45′, itaq; Sol fere totus ex viſu obſcurabatur, quod egregiè cum obſervatione convenit.

Animadvertit etiam hoc Solare Deliquium Reverendus Vir *Philippus Lansbergius Middleburgi*. Initium notavit circa matutinam ſeptimam, & finem tribus quintis horæ poſt antemeridianam nonam. In medio defecit ☉ digitos 11 $\frac{2}{7}$.

Obſervatio Lansbergii.

Obſervata quoq; eſt hæc eclipſis à *Petro Gaſſendo*, *Aquis Sextiis* in *Gallia Narbonenſi*, ubi principium defectûs conſpexit horis à media nocte 7 5′, & finem hor. 9 32′. In medio èclipſis notavit digitos eclipticos 9 23′, & æquales eſſe apparentes Luminarium diametros. *Gaſſendus*, *pag* 290. *Exercit. Epiſt.* & *Lansbergius*, *fol.* 122. *Obſervat. Aſtron.*

Gaſſendi obſervatio.

26. Anno Chriſti 1630, die 31 *Maii*, conſpecta eſt Eclipſis Solis, cujus initium *Joannes Bainbridgius* obſervavit *Oxonii*, paulò ante horam 6. pomeridianam, finem verò hor. 7 48″, in medio Eclipſis deficiebant digiti 11 $\frac{2}{7}$.

Magna eclipſ. Solaris Oxonii conſpecta, an. 1630.

Tempus apparens veræ ☌ cadit *Oxonii*, hor. 5 30′ 17″, quo tempore fuit in medio Cœli gr. 9 39′ ♍, angulus meridianus gr. 67 48′, altitudo med. Cœli gr. 46 14′, angulus eclipticæ & horizontis gr. 50 10′. Nonageſimus gr. 19 45′ ♌, elongatio Solis ab eodem gr. 60 10′ ad occaſum, parallaxi

Longi-

longitudinis 37′ 21″, parallaxis latitudinis 35′ 54″ Auſtrina.

Ad horam 1. poſt veram Synodum, nempe hor. 6 30′ 17″, dabitur med. Cœli in gr. 25 56′ ♍, angulus meridianus gr. 66 31′, altitudo M. C. gr. 39 52′, angulus Orientis gr. 45 15′, diſtantia ☉ à Nonageſimo gr. 70 48′, parallaxis longitudinis 37′ 36″, latitudinis 39′ 27″, hinc colligitur viſa ☌ *Oxonii*, hor. 6 41′ 11″.

Ad hoc tempus reperitur medium Cœli gr. 28 55′ ♍, angulus merid. gr. 66 28′, altitudo M. C. gr. 38 41′, Nonag. gr. 2 25′ ♍, altitudo gr. 44 18′, Parallaxis longitudinis 37′ 23″, parallaxis latitudinis 40′ 7″ auſtrina, latitudo ☽ vera 39′ 40″ borea, latitudo viſa 0′ 27″ auſtr. Semidiameter ☉ 16′ 4″, Semidiameter Lunæ 16′ 5″, Summa 32′ 9″, pars deficiens 31′ 42″, digiti ecliptici 11 50′, ſerupula incidentiæ 32′ 9″, horarius motus ☽ viſus unâ horâ poſt viſam ☌. ſer. 34′ 9″, tempus repletionis hor. 0 56′ 29″, finis eclipſeos hor. 7 38′.

Obſcurat. Solis Londini obſervata, an. 1639.

27. Anno Chriſti 1639, die 22 *Maii*, fuit eclipſis Solis, cujus medium animadverſum eſt *Londini*, hor. 5. 4′ P. M. Deficiebantq; tunc digiti 9 fere.

Tempus apparens veræ ☌ eſt h. 3 33′ 11″, Luminaria in gr. 10 44′ 51″ ♊, verus latitudinis ☽ motus à ☊, ſig. 5. gr. 21 41′ 17″, horizontalis paral. ☽ à ☉ 55′ 29″, angulus meridianus gr. 72 53′, altitudo M. C. gr. 54 52′, altitudo Nonageſimi gr. 59 27″, parallaxis longitudinis 32′ 0″, latitudinis 28′ 12″.

Obſervavimus quoq; hanc Solis Eclipſin Luffenhamiæ, & medium notavimus per Tubum Opticum, horis à meridie 4 59′, finem verò conſpeximus h. 6 5′, initium erat Londini, hor. 4 1′ 46″, finis ho. 6 10′ 27″, ut habet J. Twiſden in Obſ. Eclipſ. fol. 9.

Cumq; ☌ poſt Nonageſimum Eclipticæ gradum in Quadrantem Zodiaci occidentalem contigit, itaq; datur ad unam horam poſt veram ☌, nempe hor. 4 33′ 11″, altitudo Nonageſimi gr. 56 38′, diſtantia ☉ à Nonageſimo gr. 52 30′, parallaxis longitudinis 36′ 46″, latitudinis 30′ 31″, horarius motus verus 30′ 42″, differentia parallaxis longitudinis ſubt: 4′ 46″, horarius motus viſus 25′ 56″, hinc emergit Intervallum inter veram & viſam ☌ hor. 1 13′ 24″, add. ergo tempus viſæ ☌ erat *Londini*, horis à meridie 4 46′ 35″, hoc verò tempore invenitur angulus meridianus gr. 71 58′, Altitudo M. C. g. 53 50′, angulus eclipticæ cum horizonte gr. 55 52′, elongatio ☉ à Nonageſimo gr. 54 51′, parallaxis longitudinis 37′ 33″, parallaxis latitudinis 31′ 8″ auſtrina, latitudo ☽ vera 39′ 49″ borea, ergo viſa latitudo ad apparentem ☌ 8′ 41″ borea, Intervallum itaq; viſæ ☌ & maximæ obſcurationis 1′ 28″ add. ut medium eclipſis ſit hor. 4 48′ 3″.

Semidiameter Solis 16′ 4″, Lunæ 15′ 56″, ſumma ſemidiametrorum 32′ 0″, pars deficiens 23′ 19″, digiti obſcurati 8 43′. Obſervationi quam proximè conſentientes.

D. Wyberdi in hanc eclipſ. annotatio.

Joannes Wyberdus, M D C L. de hac Eclipſi, quantùm ad Calculum ſolum, hæc verba facere animum induxit.

Hæc Eclipſis (inquit) à me calculata fuit è Tabulis *Prutenicis*, ad Horizontem ſeu Meridianum *Londini*, anno antecedente (quo ſtudium Medicinæ *Oxoniæ* aggreſſus ſum, ejuſdemq; proin Auditorem, ſub Regio Profeſſore, prout ibi loci moris eſt, me profeſſus ſum) utpote quæ in meas manus primùm inciderunt; (præterquam fortè antiquiores aliquæ, putà Alphonſinæ, *Stadii* Bergenſes, & *Copernicanæ* ipſæ; atq; *Peurbachianæ* pro Eclipſibus ſolùm ſeu ſpeciatim:) quando nempe, neminem noſcerem, aut facilè invenire poſſem, qui me in meliorum multo tunc temporis extantium (ut putà *Rudolphinarum*, *Danicarum*, *Lansbergianarum*, &c.) notitiam duceret, aut aliquarum uſum doceret: (vixq; ullæ Ephemerides iſtorum annorum extiterunt præter *Origani* longinquas ſeu diutu[illegible]s, ex ipſis Prutenicis præcipuè productas: ſed quas tunc non videram, neq; in Eclipſium Solarium Calculo, noſtro loco in totum ſatisfacerent.) Quandoquidem inter aliquot Artium & Scientiarum Mathematicarum (uti eas in ſuis ſchedulis ſeu tabellis publicis, diſtinctè

diſtinctè & diversè nuncupare & numerare, uſitatum fuerit) Magiſtros, potiùſve Præceptores vulgares *Londini* (ubi primùm has aliquatenus accepi) vix unus haberetur (quoad ſcirem) qui iſtiuſmodi Tabulas comprehendebat. [nè næ aliquis fere *Oxonii*, niſi probabilitèr ipſe Profeſſor Aſtronomiæ publicus, ſeu *Savilianus*; utiq; *Londini* par Profeſſor *Greſhamianus*.] uſquedum tales, & quidem breves ſeu contractæ, ab harum inſtantium Conſtructore inſtructiſſimo, exercitatiſſimo & (dum valeret) indefeſſo, ſub titulo *Uraniæ practicæ* Latino, primùm *Anglicè* editæ erant, *ſcil.* Anno 1649. [quando nimirum Aſtrologia Judiciaria (vulgò ſic dicta) apud nos, in noſtra nempe Lingua, pervulgari & pervagari liberè, ſeu plus ſolito, ſi non plus ſatis, incepit: (ut & Medicina Aſtrologorum, popularium, plebecularium, ſeu gregalium, ſive Aſtrologaſtro-medicaſtrorum Domina, vel Magiſtra munificentiſſima; Dea, ſeu *Diana* ditiſſima & ditans: brevitèr Amica argentea & aurea) in Reipublicæ, reiq; literariæ incommodum haud exiguum.] Poſt quas aliæ tum à ſeipſo, cum ab aliis quibuſdam viris, talitèr vulgatæ erant. Quarum omnium proinde Tabularum operâ ſubſidiariâ, potiſſima & præſtantiſſima hæc Aſtronomiæ practicæ pars, vel Aſtronomiæ pars practica (poſt primariam, nempe obſervatoriam ſeu organicam; ſive ipſam immediatam Olympicam, ut in Arcem auream, vel Templum aut Theatrum ſidereum ſeu ſtelleum, quaſi proximè actam, ut ita loquar) vulgo Mathematicorum, & Aſtrologorum noſtratium planè immathematicorum, antea ejuſdem imperito (per Linguæ Latinæ inſcientiam ſaltem) patefacta fuit. Adeo ut ad Tabularum Planetariarum (uti appellem) uſum capiendum, vel motuum cœleſtium periodicorum ſeu propriorum, & ſic Eclipſium, &c. calculum, utcunq; cognoſcendum, mihimet tandem Præceptor penè neceſſariò fui (ſicut ad pleraſq; res Mathematicas:) ſcil. docentibus imprimis præceptis Prutenicis ſuis; & quidem primo loco Logiſticam, ſeu Abacum aſtronomicum vulgarem, quem ideo exinde brevitèr didici. Unde poſtea Prutenicarum tabularum uſu (& conſequentèr aliarum ejuſmodi exterarum, præcipuè Rudolphinarum & Lansbergianarum, prout mihi haud longè poſt occurrerint vel innotuerint) vehementèr delectatus & implicatus (perinde ac faſcinatus, vel ſaltem faſciatus) fui. Ita ut Ephemerides annorum aliquot *Origani* poſterorum ſeu inſequentium, è Tabulis *Lansbergii* (quæ mihi tùnc, nonnulloq; alii, veriſſimæ videbantur, præter Rudolphinas, præſertim in Luminaribus, ſpeciatim dictis; & ipſas *Tychonicas* ſeu *Brabeanas*, In Progymnaſm. &c. pro Sole & Luna ſolùm factas) condere cœpi, ſcil. Anno 1640, *Oxonii*. Sed novi ſtudii ratio me in iiſdem longè progredi non fineret.

Eadem eclipſis etiam (ait) ſub idem tempus, per me ſupputata erat ex ipſis Prutenicorum Canonum fundamentis & rationibus *Copernicæis*, juxta methodum *Barth. Pitiſci*, in Problematibus ejus aſtronomicis, Trigonometriæ ſuæ, cum aliis, ejuſdem illuſtrandæ & universè applicandæ cauſâ, adjectis; extra ullum Canonem motuum tabularem, imo-verò mediorum ſeu æqualium, modo ibi oſtenſo. [Siquidem iſtæ Tabulæ ſunt quaſi Copernicanæ caſtigatæ & correctæ; è propriis Theoricis, à Viro mathematico ad tale opus ſeu onus obeundum aptiore, quàm erat ipſe *Copernicus*, qui tantos labores Logiſticos, & calculationes continuas trigonometricas (iſto ævo multò moleſtiores quàm hòc) non facilè ferre poterat, ut in altiora intentiſſimus; & quod maximis pleriſq; Mathematicis ſolenne dici audivi. Ex quo factum eſt, ejus Tabulas propriis Obſervationibus (quæ & per penuriam inſtrumentorum ſufficientium, non ſatis accuratæ erant) non ſatis reſpondentes deprehenſas fuiſſe. Etſi ille adjutore uno vel altero non mediocri, non deſtitutus erat.]

Circumſtantiæ autem (ut dicam) hujus Eclipſis communiores ſeu ſpectabiliores, utpote cuiq; in quaq; Eclipſi conſpicuæ, ſive ſub obſervationem inſtrumentariam maximè cadentes: vel ſumma hujuſce Eclipſeôs, ex utroq; computo, ſic habet: cum differentiis utrorumq; adjunctis.

P. M.	*Prutenico,* ſeu Tabulari. h.	′	″	*Pitiſcano,* ſeu Trigonometrico. h.	′	″	*Diff.* h.	′	″
Initium	3	22	9	3	31	56	0	9	47
Medium, ſeu viſa copula	4	35	32	4	29	56	0	5	36
Finis	5	48	55	5	27	55	0	21	00
Tempus totale	2	26	46	1	55	59	0	30	47
Magnitudo (Medio tempori reſpondens) dig.	8	39	14	7	56	15	0	42	59

Notandum, quod Prutenicæ Tabulæ non diſcernunt inter medium ſeu ſummum eclipſis & viſibilem Conjunctionem : ſicq; minùs in eclipſi Lunari, inter medium ejuſdem, ſeu maximam obſcurationem, & veram Oppoſitionem : neque ullæ aliæ (quòd ſciam). ante Rudolphinas, omnium optimas, niſi ipſæ Tychonicæ antedictæ forſan : at verò *Origanus* nil tale habet in ſuo Eclipſium Calculo à *Tychone*, neq; in diſcurſu ejus de Eclipſium ſupputatione, in Introductione ſua ad Ephemerides. Quæ quidem Aſtronomiam elegantèr adornârunt, & utilitèr adauxerunt : adeò equidem paupercula (uti loquar) ſeu rudis & inculta erat ipſa antè : Et nullæ magis hodie (ni multùm fallor) quàm præſentes *Wingianæ*. Atq; ita in Eclipſi Lunæ partiali, menſe *Octobri* Anni 1641, è Tab. Rudolph. à me calculatâ, differentia temporis inter iſtas duas circumſtantias, erat 4′ min. ſaltem.

Quod differentias præcedentes attinet, dico eas probabilitèr fuiſſe minores, modò Parallaxes omnes Solis & Lunæ, in computo Prutenico (præſertim quoad longitudinem & latitudinem) calculatæ non fuiſſent ex ipſis Tabulis ſeu Canonibus, ſed è Trigonometricis, ſeu Mathematicis generalitèr dictis, adeoq; ad exactam noſtræ Urbis Latitudinem. Parallaxes autem ſecundùm longum & latum (κατὰ μῆκος καὶ κατὰ πλάτος Græcis) unà cum diſtantia Solis à vertice) vulgò ſic dicta, ſeu à puncto *Zenith* (quæ ipſa quoq; Lunæ ibi tribuitur, computatæ erant è Prutenicarum autoris meritiſſimi & laudabilis Canone compendiario ſeu ſubſidiario (ſcil. Trigoni Orthogonii ſphærici) ad latitudinem Regionum 52 gr. (inter alios ejuſmodi Canones ad varias alias Latitudines, ſeu Poli altitudines) quæ quidem à noſtra non multùm diſcrepat. Qui non ita exactè has Parallaxes exhibent, ad juſtas ſeu directas eorum latitudines, ut neq; diſtantiam Solis à vertice dictam. Nam revera haud perexiguæ ſunt Parallaxium plerunq; diſcrepantiæ in ipſo viſuali coitu, ex utroq; noſtro calculo, ubi differentia temporis eſt minima, ſcil reſpectu ſingulorum Eclipſeôs temporum. Quæ verò non ſolùm ex ipſo Canone procedunt, ſed & ex aliarum circumſtantiarum parallaxes præeuntium differentiis, ex utroq; calculo differenti ortis, ad eaſdem inveſtigandas.

Atqui ſimiles ferè differentias, præſertim Parallaxium longitudinis & latitudinis, ac diſtantiarum Solis (& ſic Lunæ) à puncto verticali, videre licet in ipſius *Lansbergii* computo Eclipſis Solaris ultimo *Maii*, Anno 1630, contingentis, & artificioſè obſervatæ, de more Tabularum ejus experiundarum gratiâ facto, tum ex eodem Canone Parallaxeôn (nam omnes iſtos Canones è Tabulis Prutenicis in ſuas tranſtulit, quos pro compendio admirando habet, ut certè ſunt) tum è propriis Theoricis ad Tabulas ejus, ceu earum fundamentis, adjunctis.

Etenim alias circumſtantias præcedaneas (putà locum ſeu longitudinem veram Solis & Lunæ in Ecliptica, & inde veram eorum conjunctionem ; & latitudinem Lunæ ab Ecliptica veram ; atq; Parallaxem utriuſq; μηκοπλάτους, ſeu verticalem, ſive altitudinalem (ut appellem) & ſemidiametros adparentes ſeu viſuales, in utroq; ſui computo deduxit ille è propriis ipſius Tabulis ſeu

Cano-

Canonibus ſolùm: adeoq; nihil pene præter diſtantias à vertice, & parallaxes in longum & latum, è Theoricis & Hypothesibus ipſis, Geometricè ſeu Trigonometricè: atq; inde ideo non cunctas circumſtantias Parallaxes haſce ſubſequentes, ceu ab iis præcipuè pendentes; utpote longitudinem & latitudinem Luminarium viſam, ſerupula incidentiæ, ſicq; ſingula tempora Eclipſeôs notabilia; ſed ſolùm tempus viſibilis congreſsûs; & ſerupula deficientia, ſicq; inde magnitudinem ſeu quantitatem ejuſdem in digitis. Quas autem omnes ego in noſtra eclipſi, ad totam ejus calculationem ſpectantes (ſeu tam antecedentes quàm ſubſequentes apparentem congreſſionem) collegi poſteriori modo, vel theorico, æquè ac priori ſeu tabulari tantùm, ſicut etiam feci in duabus magnis Solis Eclipſibus apud nos conſpicuis, & à me aliquatenus animadverſis, ſub finem Martii, 1652, & ſub initium, *Aug.* 1654. è *Lansbergii* tam Theoricis, quàm Tabulis ipſis, maximè verò in poſteriore: Et quæ ambæ à me poſthæc deſcribuntur.

Quæ autem Calculationes noſtræ præcedentis Eclipſis, cum præfatis ejuſdem obſervationibus *Londini* habitis collatæ, ab eiſdem tantò, talitérq; diſcrepant, *viz.*

	Prutenica. H ′ ″	*Pitiſcana.* h. ′ ″	
initio,	0 39 37	0 29 50	Defectivè hiſce omnibus.
medio vel ſummo	0 28 28	0 34 4	
fine vel exitu defectivè.	0 21 32	0 42 32	
Tempore toto, exceſſivè.	0 18 5	0 12 42	
magnitudine, dig. defectivè	0 20 46 (fere	1 3 45	

Namq; iſtæ Obſervationes exhibent,

	h. ′ ″	
initium	4 1 46	P. M.
medium vel ſummum	5 4 00	
finem vel exitum	6 10 27	

Inde totum tempus 2 8 41
Magnitudinem vel maximam quantitatem } dig. 9. fere

Origani Calculus hujus Eclipſis *Prutenicus* ſeu *Copernicaeus* (ut ipſe etiam vocat) ad horizontem ejus Ephemeridum *Francofurtanum*, qui eſt *Oderæ*, vel *Viadri* (à quo ponit diſtantiam *Londini* temporalem, ex *Appiano*, hor. 1. min. 7. ablativam) dat ibi

	h.	′	″		
Initium	4	47	13	P. M.	Et magnitudinem ſeu quantitatem, dig. 8. 51′ 41″ fere.
Medium ſeu viſam ☌	5	53	51		
Finem	7	00	29		
ſicq; totam durationem	2	13	16		

Inde *Londini* reductivè, per iſtam temporis differentiam longitudinariam tantùm,

	h.	′	″	
Initium	3	40	13	Quæ autem Reductio hic non ſufficit poſt veram ☌ ☉
Medium, *&c.*	4	46	51	●, etſi Calculus noſter Prutenicus ad eandem lati-
Finem	5	53	29	tudinem factus eſt quam *Origanæus*, *ſcil.* 52 gr.

Cujus Conjunctionis tempus verum ſeu apparens habet *Origanæus* Calculus

	h	′	″	
Francofurti prædictæ	4	35	49	p. m.
Ergo *Londini*, reductione ſuà	3	28	49	

	Prutenicus. h. ′ ″	*Pitiſcanus.* h. ′ ″		Diff.
				h. ′ ″
Et noſter	3 22 21	3 29 56		0 7 35
Origanæus	3 28 49	3 28 49		Prutenicus ſolùm.
Diff.	0 6 28	0 1 7		*Orig.* defectivè.
Orig. exceſſivè.				gr. ′ ″
Tunc ☉ & ●	10 15 50	10 12 35	♊	mihi. Diff. 0 3 15
in gr.	10 15 21	10 15 21		*Origano*, Prutenicè
Diff.	0 00 29	0 2 46		ſolùm.
Orig. defectivè.				*Orig.* exceſſivè.

Atq; hæc computi utriuſq; mei & Origanæi comparationis ergo. Hæcq; prima erat Eclipſis Solaris, ſub Calculo meo cadens. Cujus duplicem meum calculum oſtendens ego cuidam Viro ingenioſo, *Oxonii* artes Mathematicas docenti, profitebatur is liberè ſe non tantum in Mathematicis, præſertim in Aſtronomicis, toto biennio circitèr quo ibi tunc manſerat, & artes iſtas practicè plus minus docuerat, (ſed mihi parùm notus ante) ab aliquo ſtudioſo factum vidiſſe: tanta erat illic apud Acedemicos ſcientiæ Mathematicæ negligentia & ignorantia; addictis illis potiſſimùm vulgari, vel notionali, rationali, probabili, putativæ, ſuppoſitivæ tantùm diſciplinæ, ſeu doctrinæ Academicæ in genere, ceu totius Philoſophiæ Peripateticæ, ſive *Ariſtotelicæ* quam maximè; ut putà Logicæ, Phyſicæ, Metaphyſicæ, *&c.* (inde verò Theologiæ, ac Juriſ-prudentiæ, commodiſſimè & fructuoſiſſimè; perpaucis quidem tunc Medicinæ deditis; nunc autem perpluribus) ſepoſitâ, vel potiùs poſtpoſitâ ab illis veriſſima *μάθησει, ἢ μαθήματι, κατ' ἐξοχὴν* dicto, *i. e.* doctrinâ ſeu diſciplinâ Mathematicâ, quæ eſt Phyſiologiæ pars perfectiſſima, veriſſima & utiliſſima, ut Phyſicæ aut naturalis notitiæ, certiſſimæ, ſenſibilis, demonſtrabilis, experimentalis, inſtar clavis exiſtens: non probè memorato illo *Pythagoræ*, vel (ut vulgò fertur) *Platonis* præcepto Academico ſeu Gymnaſtico, Οὐδεὶς ἀγεωμέτρητος εἰσίτω.

28. Anno

28. Anno Chriſti 1645, die 11 *Auguſti*, obſervata eſt Eclipſis Solaris *Londini*, cœpitq; obſcuratio horis à media nocte 9 53'. Eclipſis Solaris Londini viſa, an. 1645.

		'		'	"	
Obſcurat. dig.	1	30	hor. 10	7	0.	
Digit.	3	12	hor. 10	23	20.	
Digit.	4	0	hor. 10	32	40.	
Digit.	4	24	hor. 10	37	20.	
Digit.	5	0	hor. 10	49	0.	
Et poſtea	5	24	Obſervati fuerunt.			

Tempus apparens veræ Synodi Luminarium accidit *Londini*, hor. 11 46' 39", quo quidem tempore ☉ vero ſuo motu fuit in gr. 28 28' 28" ♌, Anomalia latitudinis ☽ ſig. 0, gr. 9 46' 26", horarius motus ☽ à ☉ verus 31' 57", horizontalis parallaxis 56' 13", medium Cœli gr. 25 0' ♌, angulus meridianus gr. 70 21', altitudo medii Cœli gr. 51 42', angulus Eclipticæ & Horizontis gr. 54 17', elongatio ☉ à Nonageſimo gr. 18 20' 50" ad ortum; Hine reperitur parallaxis longitudinis 14' 22", latitudinis 32' 49".

Cumq; incidat hæc ☌ in Quadrantem Zodiaci Orientalem, erit ad horam antecedentem, nempe hor. 10 46' 39", angulus meridianus gr. 74 25', altitudo medii Cœli gr. 56 19', angulus Eclipticæ & Horizontis gr. 57 42', elongatio ☉ à Nonag. gr. 28 47', parallaxis longitudinis 22' 52", latitudinis 30' 2", differentia parallaxis longitudinis 8' 30", horarius motus viſus 23' 27", hinc colligitur intervallum inter veram & viſam ☌ 36' 45" ſubtr. ita ut viſa ☌ ſit hor. 11 9' 54" *Londini*. Hoc verò tempore eſt aſcenſio recta medii Cœli gr. 138 5', angulus meridianus gr. 72 43', altitudo M. C. gr. 54 41', angulus Eclipticæ & Horizontis gr. 56 30', Nonageſimus gr. 3 43' ♌, parallaxis longitudinis 19' 36", parallaxis latitudinis 31' 2" auſtrina, latitudo ☽ vera 49' 3" borea, latitudo viſa 18' 1" etiam borea.

Semidiameter Solis 16' 9", Lunæ 16' 9", ſemidiametrorum ſumma 32' 18", pars deficiens 14' 17", digiti abſciſſi 5 18', ſcrupula incidentiæ colliguntur 26' 48", hæc per motum horarium ☽ à ☉ viſum 23' 9" diviſa, exhibent tempus Incidentiæ hor. 1 9' 28", at quoniam intervallum inter viſam ☌ & medium Eclipſeos ſuit 4' 3" ſubtr. initium itaq; Eclipſis factum eſt *Londini*, hor. 9 56' 23" ante meridiem, haud aliter quam ibidem obſervatum fuit.

Finem hujus Eclipſis conſpexit Doctiſs. *Johannes Palmerus Etone*, cum Azimuthus Solis eſſet à meridie gr. 0 55' exactè, hoc eſt hor. 0 2' 30" poſt meridiem. Vide *Catalog. Eclipſium* J. P. Anglicano Sermone ſcriptum, *Pag.* 209. Obſervata etiam eſt hæc Eclipſis Etonæ.

Hæc Eclipſis (inquit) à me quodammodo obſervata erat, unà cum duobus aliis Viris Mathematicalibus *Londini*: etiamq; ante à me calculata è Tabul. *Lansberg.* ad Meridianum *Londinenſem*; ſed calculum amiſeram: ſolùm memini initium Eclipſis ex eo, eſſe hor. nonâ, min. 40. (ſeu hor. 9 $\frac{2}{3}$) a. m. Et cupiens obſervare hanc Eclipſim, ut viderem quomodo Calculus meus hac in parte ad ipſam Eclipſim ſe haberet; Adibam (paulò ante ejus initium) D. *Marr* Scotum, Mathematicum ingenioſiſſimum, Virumq; probum & amiciſſimum, atq; Horologiographum, vel potiùs Sciateriographum Regium peritiſſimum, tunc apud Regis Palatium *Londini*, Aulam albam dictum, morantem (diu nempe, poſtquam ipſe Rex eodem exturbatus erat) quem inſtrumentis nonnullis in hanc rem idoneis paratum eſſe putabam (quum ipſemet inſtrumentis & loco obſervationi accommodis deſtitutus eram) Atq; ſic nos, unà cum Filio ſuo, ope Tubuli initium Eclipſeôs obſervare aggreſſi ſumus, habentes in promptu Quadrantem ligneum, qui Solis altitudinem ad gradûs minutum vulgare, ſeu partem 60^m exactè exhiberet: ut & Inſtrumentum iſtiuſmo- D. Wyberdus de hac Eclipſi

di

di horarium, armillare, univerſale, quod vulgò æquinoctiale, ſeu Annulus Æquinoctialis, vocatur, tam amplum, tamq; ſcrupuloſè partitum, ut ſimilem horæ partem æquè præberet. Sed revera antequam eam ritè capere potuimus, nubecula alba ſubitò lumen Solis adeo obſcurabat, ut à re propoſita deerrare cogeremur. Paulò autem poſt, Sole iterum elucente, altitudinem ejus cepimus; quam ab initio juſto Eclipſeôs, quinq; circitèr minuta auctam eſſe, rationabilitèr judicavimus; unde ab altitudine acceptâ detraximus 5′, ut fieret apparens altitudo correcta, initio eclipſeôs congruens. Sicq; ex iſta altitudine, per parallaxem & refractionem, in veram converſâ; & declinatione Solis, ac latitudine Urbis, computavi ego tempus diei, hor. 9 min. 58 ½, quod ſuperat tempus à me ex Tabulis ſupputatum, min. 18 ½. Sed hâc obſervatione non contentus (quia Solis altitudinem in principio Eclipſis non accuratè habuimus) adibam poſtridiè D. *Foſterum*, Aſtronomiæ in Collegio Greſhamenſi *Londini*, Profeſſorem doctiſſimum, quem majori cum apparatu hanc Eclipſim obſervaſſe opinatus ſum; eo quòd ille Aſtronomicis obſervationibus erat admodum artificioſus & accuratus: Et inde mihi is Scripto oſtendebat, ſe principium Eclipſis horologiis exquiſitis (per Solis altitudines ante rectificatis) unà cum Tubo optico amplo, aliiſq; mediis, deprehendiſſe, hor. 9. min. 53 ½, ſcil. citiùs noſtro obſervato 5′ min. & ſeriùs tempore à me ſupputato, 13′ m. [Quoniam verò parallaxes omnes Solis & Lunæ, in longitudinem & latitudinem unà cum diſtantiis eorum à vertice, calculatæ erant ex *Eraſmi Reinholdi* Canone, ad latitud. 52 gr. qui parallaxes iſtas, *&c.* non tam exactè exhibet, uti Calculus ipſe trigonometricus, neq; compendioſiùs, dummodo Calculus iſte Logarithmalitèr inſtitutus ſit, & qui vix minùs accuratus eſt quam expeditus & facilis, licet *Lansbergius* calculo Logarithmico nullibi (quòd ſciam) uſus eſt: ideo tempora Eclipſeôs non tam exactè ſupputari poſſent; prout ante ſupra ejuſmodi Eclipſim *Maio* 1639, animadverti.] Medium & finem hujus eclipſis cernere nobis non licebar, propter nubes ac pluvias fere continuas: quicquid vel D. *Foſterus*, vel aliquis alius forſan, per Teleſcopium ſive Tubum opticum ampliùs, atq; horologia exquiſita, ad ipſam Eclipſem diſcernendum, & quantitates ejuſdem varias, temporaq; particularia correſpondentia determinandum, præſtitiſſe videatur *Londini*, ſecundum præmiſſa obſervata.

[margin: Obſ. Eclipſ. Sol. an. 1649. die 30 Maii, Cantabrigiæ.]

29. Anno Chriſti 1649, die 30 *Maii*, horâ ſextâ matutinâ, obſervata eſt Eclipſis Solis *Cantabrigiæ*, in Collegio S. *Johannis*, à Doctiſſimo Viro *Roberto Billingſleo*. Deficiebatq; tunc Beſſis unius Digiti à Borea, ut liquidò conſtat ex ejus obſervatione, quam ante annos 15 liberiùs nobis communicavit.

Tempus medium veræ ☌ fuit *Londini*, hor. 18 51′ 11″. Tempus autem apparens hor. 19 2′ 6″, *Cantabrigiæ* verò, hor. 19 3′ 6″, quo tempore Luminaria conjunguntur in gr. 19 32′ 38″ ♊, non procul à capite Draconis; & tunc datur parallaxis Longitudinis 28′ 55″, Latitudinis 38′ 18″, horarius motus viſus 27′ 13″. Hinc dabitur intervallum inter veram & viſam ☌, hor. 1 3′ 44″ ſubtrahendum, adeoq; viſa ☌ ſe offert *Cantabrigiæ*, hor. 17 59′ 22″, ad quod tempus reperitur Parallaxis Longitudinis 29′ 52″, Latitudinis 41′ 50″, Latitudo ☽ vera gr. 1 11′ 41″ borea; Latitudo viſa 29′ 51″ etiam borea, Semidiameter ☉ 16′ 4″, ☽ 15′ 32″, Summa Semidiametrorum 31′ 36″, pars deficiens 1′ 45′, ergo digiti ecliptici 0′ 39″, haud alitèr quam D. *Billingſleus* obſervavit.

30. Eodem anno 1649, die 25 *Octobris*, obſervata eſt Eclipſis Solis in Collegio Greſhamenſi *Londini*, ut infra.

Hor.

Obſervatio Eclipſis Solis ad 25 diem Octob. 1640. Londini.

	Hor.	′	″	Dig.	′	Hor.	′	″	Dig.	′	
Juſtum Initium	12	41	0	0	0	1	59	0	4	0	
	12	53	40	1	0	2	14	20	2	48	
	1	2	0	2	0	2	18	0	2	24	
	1	12	0	3	0	2	21	20	2	0	
	1	26	0	4	0	2	29	30	1	0	
Maxima Obſuratio				4	30	2	36	30			Juſtus Finis.

Tempus apparens veræ ☌ accidit *Londini*, hor. 1 47′ 24″, ad quod tempus verus locus ☉ eſt in gr. 12 27′ 24″ ♏, aſcenſio Solis recta gr. 220 0′, medium Cœli gr. 8 36′ ♐, angulus meridianus gr. 80 57′, altitudo M. C. gr. 16 40′, angulus eclipticæ & horizontis gr. 18 54′, elongatio Solis à Nonageſimo gr. 1 34′ 27″ ad ortum, parallaxis Longitudinis 0′ 31″, Latitudinis 55′ 12″.

Ad Quadrantem horæ antecedentem, nempe hor. 1 32′ 24″, dabitur aſcenſio recta M. C. gr. 243 5′, med. Cœli in ecliptica gr. 5 2′ ♐, angulus meridianus gr. 79 35′, altitudo med. Cœli gr. 17 15′, altitudo Nonag. gr. 20 4′, diſtantia Solis à Nonag. gr. 7 37′, Parallaxis longitudinis 2′ 39″, latitudinis 54′ 48″ differentia parallaxis longitudinis 2′ 8″, horarius motus verus in 15′ horæ 8′ 53″, viſus 6′ 45″, ergo proveniet intervallum inter veram & viſam ☌ 1′ 9″ ſubtr. adeoq; viſa ☌ hor. 1 46′ 15″. quo tempore datur parallaxis longitudinis 0′ 41″, parallaxis latitudinis 55′ 10″ auſtr. latitudo ☽ vera gr. 1 17′ 6″ borea, latit. viſa 21′ 56″ etiam borea, Semidiameter ☉ 16′ 30″, Semidiameter ☽ 16′ 44″, Summa 33′ 14″, pars deficiens 11′ 18″, Digiti 4 8′, haud aliter quam Obſervatio habet.

Scrupula incidentiæ 24′ 58″, tempus incidentiæ hor. 0 54′ 3″, tempus repletionis hor. 0 54′ 18″, initium hor. 0 52′ 12″, finis hor. 2 40′ 33″, quam proximè Obſervationi conſentiens. At quia medium Eclipſis ſequitur viſam Conjunctionem, tardiùs apparere debet, tum initium, tum finis deliquii circitèr 4′.

Animadvertit quoq; hoc Solare deliquium *Johannes Palmerus* Theologus & Mathematicus eximius *Ectonæ*, ſub longitudine gr. 23 35′, & latit. gr. 52 15′, ut hic vides.

Eadem Eclipſ. obſervata fuit Ectonæ, à J P.

Hor.	′	″	Dig.	′	Hor.	′	″	Dig.	′
0	41	56	0	7	1	47	28	4	0
0	49	48	1	0	2	3	28	3	0
0	59	44	2	0	2	15	32	2	0
1	9	44	3	0	2	22	40	1	0
1	26	12	4	0	2	31	4	0	0
1	33	32	4	20					

Vide Catalogum Eclipſium *Johannis Palmeri*, pag. 210.

Hæc

[… *Wyberdi* in … nc Eclipſin … imadverſio.]

Hæc eclipſis (ait ille) tota conſpicua erat *Londini*: at ego in ejus fine ſive exitu ſolo, exactè obſervato, cepi Solis altitudinem (unà cum D. *Gulielmo Leybourno*, juvene etiam, Typographo, in Mathematicis valde ingenioſo) per Quadrantem mediocris magnitudinis (cujus ſinguli gradus erant quadripartiti tantùm) 14 ¾ gr. Atq; tanta præciſè accepta erat à D. *Foſtero*, Profeſſore Aſtronomiæ *Greſhamiano*, & à D. *Leekio*, Mathematico etiam experto (& Artes Mathematicas *Londini* vulgaritèr docente) ſeorſum, prout D. *Leybourn* mihi paulò poſt, ab iis narravit. Tempus autem erat per horologia publica ſeu parochialia nobis audita, circa medium inter hor. 2 & 3, p. m. Et locus Solis huic congruens, erat tum juxta *Eichſtadii* Ephemerides, è Tabulis *Longomontanis*, ſeu *Danicis*; tum juxta *Dureti* Ephemerides, è tabulis ejus *Richelianis*, (quæ ſunt quaſi Epitome *Rudolphinarum*) ſupputatas, in 12 ⅓ gr. ♏; cujus loci declinatio eſt 15° 37′ 41″ auſtrina; ſicq; diſtantia ☉ à Polo boreo, 105° 37′ 41″. Parallaxis autem Solis, altitudini ejus hic acceptæ reſpondens, eſt ſecundum *T. Brahæum*, in Progymnaſm. Aſtronomiæ inſtauratæ (ut circa mediam viam inter mediam & minimam ſuam à Terra diſtantiam exiſtentis) 2′ 57″ addenda; & refractio 7′ 38″ detrahenda; ad veram altitudinem proferendum, 14° 40′ 19″: unde diſtantia Solis à Polo Horizontis, ſeu vertice, eſt 75° 19′ 41″: E quibus, & latitudine loci, ſeu Poli altitudine receptâ, 51° 32′, habebitur tempus diei ut ſequitur, methodo breviſſimâ, & computo compendioſiſſimo, ſeu Logarithmico etiamq; exacto.

Diſtantia Solis à Polo } Mundi	105°	37′	41″.	}	A.
Horizontis	75	19	41.	}	
Compl. latitud. ſeu elevat. poli	38	28		}	
aggreg.	219	25	22		
ſemiſſ.	109	42	41		
Compl. altitud. Solis.	75	19	41		S.
diff.	34	23	00		

Deinde, 1. ut Rad.	10, 0000000	
ad ſinum 74° 22′ 19″ compl. diſt. Solis à polo (ad ſemicirculum) }	9, 9836401	
Ita Sinus 38° 28′	9, 7938317	
ad Sinum 4ᵐ.	9, 7774718	36° 48′ circitèr.

2. Ut hic Sinus, ad ſinum 70° 17′ 19″, comp. ſemi aggr. 109 42′ 41″ }	9, 9737757		
Sic ſinus 34° 23′.	9, 7518385		
ad ſinum 7ᵐ.	9, 9481424	} A.	62° 33′ circitèr.
Rad.	10, 0000000		
Sum.	19, 9481424		

Semiſſ: 9, 9740712, dat 70° 23′ 52″, pro complemento dimidiæ diſtantiæ Solis à Meridiano in partibus Æquatoris, *viz.* 19° 36″ 8″, cujus duplum igitur, 39° 12′ 16″, eſt ejus diſtantia tota à Meridiano; & quæ in tempus converſa, dant hor. 2 36′ 49″, p. m. pro fine Eclipſeôs.

[… *Meſologicum*, … algò Medi… m proporti… nale; idem … ic quod *Me… rithmeticum*, … algò Med. … rithmeticum … ctum.]

Initium & medium hujus Eclipſis æquè ac finem quoad tempus, obſervare ambo nos ſimul ſtatuebamus; ſed D. *Leybourn* aliqua de cauſa, impedimento erat; etſi tempeſtivè conveniebamus.

31: Anno

31. Anno Chriſti 1652, die 29 *Martii* ante meridiem, fuit Eclipſis Solis obſervata *Londini*, in hunc modum.

Eclipſis Solis magna, anno 1652, Londini obſervata.

Tempora vera.		Digiti ecliptici		
Ho.	′	D.	′	
9	46	4	2	
9	52	5	2	
9	58	6	2	
10	4	7	35	Maxima Obſcuratio 11 dig. exactè.
10	8	8	1	
10	30	10	8	
10	33	11	0	
10	38	10	8	
10	51	9	0	
10	56	8	1	
10	57	8	0	
11	7	6	4	
11	11	5	8	
11	18	4	5	
11	22	4	0	
11	28	3	0	
11	34	2	0	
11	40	1	0	
11	46	0	0	Finis.

In initio nubes obſtiterunt quo minus cerneretur. Poſteà verò ſequentia obſervârunt.

Juſtum initium colligi poterit proportionalitèr, ſi inter ſe comparentur Obſervationes tres primæ: nam per eas colligimus unum digitum abſolvi in 6 minutis horariis, adeoq; dig. 4 2′, peragi in 25′ minutis. Subiatis 25′ ex hor. 9 46′, reſtat hor. 9 21′, pro hora initii Eclipſis.

Ex tribus punctis diſci Lunaris in diſco Solis obſervatis, colligimus Diametrum Solis ad Diametrum Lunæ eſſe ut 12 ad 12 24.

Juxta *Keplerum* Diameter apparens Solis erat 30′ 40″, ergo apparens Diameter Lunæ fuit 31′ 008.

At verò ex *Tab. Kepleri*, Diameter Lunæ eſt 32 466, error eſt 1′ 458 nimis.

Juxta *Lansbergium* apparens Solis Diameter erat 34′ 53″, ergo apparens Diameter Lunæ fuit 35′ 008, & ita equidem ex *Lansbergii* Tab. excerpitur, nempe 35 minutorum exactè. Hactenus ex Obſervationibus Eclipſium Doctiſs. Viri *Johannis Twyſden*, M. D. *fol.* 13.

Ex altera autem obſervatione facta à D. *Gulielmo Leybourno Londini*, finis fuit hor. 11 43′, & digiti ecliptici 11 fere.

Hanc quoq; Eclipſin exquiſitiſſimè, per totum ejus decurſum obſervavit Doctiſſimus & peritiſſimus Vir *Johannes Palmerus Ectone*, coram magno cœtu Generoſorum ſimul & Doctiſſ. Virorum.

Eclipſis Solis obſervata in agro Northamptonienſi, à Jo. Twyſden, & Jo. Palmero.

Obſervata etiam fuit hæc Eclipſis à *Doctore Twyſden Eſtone*, (non procul ab *Ectona*) ſub longitudine gr. 23 37″, & latitudine gr. 52 15′, quæ duæ Obſervationes ita ſe offerunt.

Ut obſervavit *Jo. Palmerus*					Ut obſervavit *Jo. Twyſden*			
Tempora vera.			Digiti eclip-tici.		Tempora vera.		Digiti eclip-tici.	
H.	M.	S.	D.	′	Ho.	M.	D.	′
9	21	12	0	3	9	19	0	0
9	27	0	1	0	9	27	1	15
9	31	8	2	0	9	35	2	30
9	37	0	3	0	9	38	3	0
9	44	0	4	0	9	47	4	30
9	50	0	5	0	9	49	5	0
9	55	0	6	0	9	56	5	30
10	0	0	7	0	10	8	8	10
10	6	30	8	0	10	11½	8	30
10	11	28	9	0	10	14	9	0
10	18	0	10	0	10	18	9	30
10	25	0	11	0	10	21	10	0
10	32	4	11	22½	10	26	10	30
10	35	30	11	0	10	29	11	0
10	42	30	10	0	10	31	11	15
10	48	30	9	0	10	35½	10	45
10	55	0	8	0	10	37	10	0
11	1	0	7	0	10	49	9	0
11	6	30	6	0	10	53	8	45
11	11	45	5	0	10	55½	8	0
11	19	0	4	0	11	2	7	0
11	24	30	3	0	11	7	6	0
11	31	0	2	0	11	17⅔	4	0
11	35	30	1	0	11	25¾	3	15
11	42	30	0	0	11	31½	2	5
					11	35	1	15
					11	38½	0	45
					11	42⅔	0	0

Nota *Doctoris Johannis Twyſden.*

De Methodo Obſervationis.

Horâ aut circiter unâ ante Eclipſis initium compoſui *Horologium* ambulatorium optimi artificii, minuta prima accuratè indicans, ad horam proximè veram eodem tempore altitudinem Solis obſervavi per Quadrantem. Erat autem Solis altitudo obſervata gr. 19 13′, ſed per *Refractionem*, & *Parallaxin Lansbergianam* correcta gr. 19 10′, unde hora ex calculo erat hor. 7 26′ 48″, Horologium moſtravit hor. 7 21′ 0″.

Hanc Solis Eclipſin obſervavit etiam Hevelius Dantiſci, notavitq; initium h. 11] 3′ 21″ A. M. med. h. 0 10′ 35″, finem h. 1 19′, 2″ P. M. dig. 9 22′, Prop. Semid. ⊙ ad Semid. D, ut 1000 ad 1033.

Paulo poſt finitam Eclipſin obſervavi denuò Solis altitudinem gr. 45 20′, parallaxis addenda 1′ 37″ 20‴. Ergo vera altitudo erat gr. 45 21′ 37″, Automaton indicavit hor. 11 49′.

Locus Solis ad tempus maximæ obſcurationis eſt gr. 19 16′ 29″ ♈, ex tabb. *Vincentii Wingi.*

Declinatio ⊙ gr. 7 33′. Anguli horarii ſupputati, ſunt ex obſervata Solis Azimutha ad diverſas Eclipſeos Phaſes, unde horæ automati correctæ ſunt.

Azimutha Solis ad horam 7 26′ 48″, erat gr. 77 11′ 30″ à meridie. Vide Obſervationes Eclipſium *Jo. Twyſden, fol.* 15.

Obſervata

Obſervata eſt hæc Eclipſis *Pariſiis à Petro Petit, Ægidio Perſonerio de Roberval, Petro Bourdin, Fran. Gaynot, Iſmaele Bullialdo,* & aliis, & fuit initium hor. 9 30′, finis hor. 11 51′, digiti 10 20′. Poſitâ Diametro ☉ apparente 100 partium, ☽ diameter viſa eſt 102.

Obſervationes habitæ Pariſiis.

Eandem Eclipſin obſervavit *Diniæ*, quæ eſt orientalior *Lutetiâ* 25 horæ minutis, & ſub elevatione Poli gr. 44 6′, *Petrus Gaſſendus*. Initium ſtatuit hor. 9 43′, finem hor. 11 58′, dig. 9 24′.

Obſervatio Eclipſis Diniæ, à *Petro Gaſſendo* facta.

Tempus apparens veræ ☌ juxta Tabulas noſtras contigit *Londini*, hor 22 21′.53″, & tunc temporis ☉ erat in gr. 19 15′ 17″ ♈. ☽ gr. 19 15′ 17″ ♈, Anomalia latitudinis ſig. 0 gr. 8 48′ 29″, Aſcenſio recta M. C. gr. 353 13′, Medium Cœli in Ecliptica gr. 22 36′ ♓, Angulus meridianus gr. 66 39′, Angulus Eclipticæ & Horizontis gr. 41 39′, elongatio Solis à Nonageſimo gr. 2 23′ 20″ ad occaſum, horizontalis parallaxis ☽ à ☉ 57′ 44″, parallaxis longitudinis 1′ 36″, quæ per motum horarium ☽ viſum diviſa, exhibet intervallum inter veram & viſam ☌ 3′ 36″ addendum, adeo ut viſa ☌ cadat hor. 22 25′ 29″. Ad hoc tempus eſt parallaxis longitudinis 2′ 4″, parallaxis latitudinis 42′ 55″ auſtrina, latitudo ☽ verâ 46′ 4″ borea, latitudo itaq; viſa 3′ 9″ borea, Semidiameter Solis 16′ 16″, Lunæ 16′ 34″, Semidiametrorum ſumma 32′ 50″, pars deficiens 29′ 41″, hinc digiti ecliptici colliguntur 10 57′, id eſt 11 fere, quot etiam habet Obſervatio.

Scrupula incidentiæ ſunt 32′ 41″, horarius motus ☽ viſus unâ horâ ante viſam ☌ 27′ 13″, itaq; erit tempus incidentiæ hor. 1. 12′ 3″, horarius motus viſus unâ horâ poſt viſam ☌ 26′ 11″, & tempus repletionis hor. 1. 14′ 53″, ergo initium Eclipſis colligitur hor. 9 13′ 26″, à media nocte, finis hor. 11 40′22″, vix aliter quam obſervatum eſt *Londini*.

Obſervata quoq; eſt hæc Solaris Eclipſis à Doctiſſ. Viro *Johanne Wyberdo* Medicinæ Doctore, & Mathematico eximio, *Carigfergi*, alias *Knocfergi* in *Hibernia*, ſub longitudine gr. 17 0′, & latitudine 54 40′; ubi in medio defectus, Lunam conſpexit momento quaſi & ex improviſo totam intra Solis diſcum comprehendi, ut circumagere videretur, ſicut lapis molaris ſuperior, ut amplius appareat ex ſubſequenti obſervato Doctoris, nuper edito.

De Eclipſi Solis 29 Martii, 1652.

Quam antea (inquit) ex *Tabulis Lansbergianis* exactè ſubduxeram ad *Meridianum Londinenſem*, & dabant *deliquium maximum*, dig. 10 $\frac{2}{3}$, & tempus ejuſdem (pro viſibili ☌) hor. 9 26′, & principium hor. 8. 10′, finem 10ʰ 35′, totamq; proinde durationem hor 2 25′. Quòd totum tempus cum aliis quibuſdam ex optimis Tabulis Calculationibus, poſteà mihi viſis, proximè convenit. Sed tempora particularia ſunt iis priora per integram minimùm horam Quod multoperè miratus ſum, quando meum Calculum quem ab initio ad finem, ſeu per omnes Canones, omnibus numeris ſcrupuloſiſſimè abſolveram, minimè ſuſpicari poſſem: Et qui hinc ex ipſis Canonibus repetitus, quoàd neceſſum erat, ipſum confirmabat. Talem verò in hiſce Tabulis errorem inſignem & intollerabilem, nunquam antea deprenderam.

Johannes Wyberdus, M. D. de Eclipſi Solis Matt. an. 1652

Ego autem tunc *Carigfergi* (ſeu *Knocfergi*) in *Hibernia* ad ſinum maris ſitæ exiſtens, ut *Medicus*, ex *Senatus-conſulto*, *Copiis Anglicanis*, in partibus iſtius Regionis Septentrionalibus, notavi hanc Eclipſin per totum ejus decurſum, Cœlo exiſtente ſereno (præſente uno mihi familiari, qui ibi in horto quodam Sciatericum ſeu Solarium horizontale, ſuper lapidem quendam molliuſculum, Scandulam Scoticam dictum, optimè lævatum, ad iſtius Urbiculæ antiquiſſimæ Palatinæ, ſeu Regiæ, latitudinem fecerat, uti eam ſuper Globum terreſtrem, vel Mappam aliquam Geographicam, gr. 54 $\frac{2}{3}$ circiter, invenerat. Atq; ſic nos ſimul unà obſervatione in Solis Altitudine meridianâ (ſed non tam

accuratá, ob defectum ſatis exacti inſtrumenti, *&c.*) poſtea collegimus; & alterá ſimili obſervatione, vix gr. 54 ½ (licet Navarchi quidam illò quandoque advenientes volebant eſſe gr. 55 ad minimum (imò propiùs gr. 56) quantum etiam ego in optimis quibuſdam *Tabulis* ſeu *Chartis Geographicis*, ac ſpeciatim in aliquibus Chartulis Chorographicis iſtius Regionis ex in inveni, quæ & ejuſdem loci longitudinem exhibent inter gr. 13, & 14, & aliquæ amplius, nempe gr. 17 42′; ſi fides iis adhibenda ſit; quandoquidem illæ plerorumq; locorum longitudines & latitudines oſtendunt potiùs ex eorum diſtantiis ab invicem itinerariis juxta vulgarem milliarium vel aliarum menſurarum computum, (qui ubiq; fere admodum incertus & inconſtans eſt, in una eademq; Regione) quàm ex Obſervationibus Aſtronomicis. Nullum verò habuimus ibi inſtrumentum, aut Horologium exquiſitum, quo tempora Eclipſeos ad punctum determinare potuimus, ſed fere ſolum iſtud Sciatericum, haud longè ante à nobis per Solem meridianum bis examinatum & debitè poſitum, cujus quodlibet ſpatium horarium in 4 partes erat diviſum, tam amplas, ut non ſolùm 8 m, verumetiam 16 m, aut 20 m partem horæ potuimus probè conjicere. Atq; ſic initium Eclipſis vel primùm Lunæ ad Solem appulſum viſibilem, quem ope Specularii vulgaris, etiamq; manûs clauſæ, contractæ, vel incurvatæ; aut ambarum manuum ſic diſpoſitarum ſimul, adinſtar tubuli, potuimus ſufficientèr cernere: (quod quoq; per chartam convolutam ad modum Tubuli fieri poteſt) obſervavimus eſſe ſuper Sciatericum, octante horæ quam proximè ante Nonam. Quum autem Eclipſis eouſq; progreſſa eſſet, ut ☉ ægrè admodum lumen emitteret, adeò quòd umbram Stili ſeu Gnomonis ſuper Solarium haud ita facilè percipere potuimus (particula Solis nondum obſcurata directè quaſi verſus Orientem, inſtar Lunæ corniculantis, cùm ſecundá circitèr veſperá poſt, vel potius penultimo matutino ante Conjunctionem interdum conſpiciatur apparente (quam utranq; accuratiſſimus & acutiſſimus ille *Selenographus, Jo. Hevelius* peculiaritèr *Lunam corniculatam* appellat, illam nempe *creſcentem*, hanc *decreſcentem*.) Luna momento quaſi & eximproviſò, totam ſe intra Diſci Solis orbitam ſeu ambitum (quatenus conſpectui noſtro appareret) tam agilitèr injiciebat, ut *circumagere aut circumvolvere videretur*, ſicut Catillus ſeu *Lapis Molaris ſuperior* (Curſor dictus) Sole tunc circumcirca ejus limbum ſeu marginem ſplendidulo vel coruſco apparente, ut eſſet quaſi *Spectaculum Rotationis* dictum, aſpectu ſanè valde jucundum ac notatu dignum, & quidem æqualitèr undiq; poſt unum temporis minutum, (tam-quam conjectare poteram) circitèr dimidium digiti, aut ⅓ ſaltem, (quantùm etiam conjicere licebat) inſtar circuli luciduli, vel Coronæ ſubrutilæ; & tunc pro certo centralitèr conjuncta erant *Luminaria* quoad apparentiam. Et quamvis pleriq; omnes calculi publici hujus Eclipſis pro diverſis Mundi locis quos adhuc mihi videre licuit, dant apparentem ſeu viſualem Lunæ diametrum aliquantulo majorem Diametro Solis (quod etiam privatus meus Calculus præbet, ſed quidem minimè omnium, *viz*. in adparente Semidiametro Lunæ ſolummodo ad ſcr. ſec. 5″, quæ hìc faciunt tantùm circitèr 35 m. partem unius digiti, vel dig. 0. 0289 in ☉, & 0. 0288 fere in ☽) unde Lunam non modo integrum Solis diſcum ſub viſam Conjunctionem (ubicunq; ea contingeret eſſe exactè centralis) præcisè vel marginatim obtegere ſeu obvelare, ſed & ultra ſeu præter eum undiquaq; æqualitèr (licet pauxillulum & inſenſibilitèr) extenſum ſeu expanſum, vel expaſſum iri (ſi ita loquar) aut eundem penitus occulere, fortè expectandum foret, atq; ſic diſcus Solis lucidus in diſcum Lunæ opacum ſeu obtenebrantem totalitèr immergeretur, adeo ut nihil de corpore Solari extus cum videri debuiſſet (ut aliqui magis curioſi forſan objiciant) & proinde Eclipſis hæc paulò pluſquam completè totalis eſſe (ut ita dicam) judicaretur (atq; in Eclipſi Solari nonnunquam obſervatum fuerit, cum tenebræ tanquam ipſa nox adulta ſeu profunda factæ ſint (atq; ut ipſe etiamnunc reminiſci poſſim à tempore quo puerulus eram) immò quandoq; noctis alicujus

tenebris

tenebris profundiores ſeu denſiores (ſi hoc modo tales fieri poſſint) ut aliqui referunt: Circuluſq; iſte, ſeu *Corona* Lunam opacam marginalitèr circumcingens, tantum ſplendor aut fulgor aliquis à Sole abintra quaſi (vel extra) Lunæ ſubjectæ marginem, ſeu peripheriam viſibilem, tanquam è nube denſa vel opaca Soli ſubjecta circum ejus extremitates, fimbrias, ſive latera (uti frequentèr fit) projectus exiſtimaretur (vel ut jampridem me vidiſſe memini circa talem nubem veſperi à Luna, cum plena circitèr eſſet, & unâ vel alterâ horâ tantum ab exortu ejus evecta, maximâ Cœli parte tunc à nubibus liberâ, cum tranquillo (quod mihi tunc notabile, & aliis conſpicientibus videbatur) ſcilicet Coronam claram, coruſcam, nubi denſæ, nigræ, ampiæ, inter Lunam & oculum poſitæ, & inæqualitèr rotundæ ſeu irregulari, utpotè in extremitatibus, limbulis, ſive perimetro quaſi ejus viſibili, admodum laciniatæ ſeu inciſæ, arctè circumductam ideoq; non completè circularem (ut *Halo* plerunq; fit) ſed inordinatam & laciniofam, atq; non ſolùm proximè nubem quaſi, verumetiam in ipſius extremis à nube, ſeu proprio perimetro, eodem modo; apparebat enim, quatenus meminiſſe poſſim, dimidium Diametri Lunaris ſaltem lata, & parte interiore, nubem opacum verſus, ſive nubi propiore, coloris rubei vel rutili, exteriore autem, ſeu à nube remotiore albidi vel pallidi; atq; ita *Impreſſio* iſthæc meteorologica lucida, apparens, ſeu φάσμα, & informis (ut Philoſophi appellant) nec *Halo*, ſeu *Area* vel *Corona* (ſpecialitèr ſic dicta) nec *Chaſma*, ſeu *Hiatus* aut *Vorago*, propriè dici poſſet, ſed potius *Color* tantùm, vel *Colores* (ut Phyſici vocant) ſine certâ figurâ in nubis partibus exterioribus (utpotè quàm interiores ſeu mediæ, rarioribus & ſubtilioribus) à Luna depicti ſeu impreſſi, quanquam revera *Chaſmati* (ſaltem exiguo, quale *Foveam* ple: iq; ſpeciatim appellant) magis accedere videretur, ideo quod flagrantiam, vel incenſionem quaſi aliquam referebat, juxtim nubis viſibilis opacæ extrema ſeu latera fulgore perfuſa, utputà radiis Lunaribus illuſtrata (ſed de hac re obitèr tantum, ſatis ſuperq;) Tamen (inquam) ut hæc Eclipſis in loco prædicto, eo modo apparuerit quo hic deſcripſi, (& ab aliquibus aliis etiam ibi conſpecta fuit, præſertim à Generoſo quodam Viro, haud inter infimos Militiæ *Ordines* ſeu *Ductores* iſtis in partibus, & Civitatulæ iſtius Præſidariæ, ſub idem tempus Vice-Præfecto, per *Perſpectivum* parvum, vel *Tubulum* Opticum ordinarium, è cubiculi ſui Feneſtra, ita) *Corona* illa lucidula, potius ipſa margo, vel portiuncula quædam ipſius Solis extra vel cis undiq; diſcum Lunæ opacum, rutilans eſſe nobis videbatur, quam micatio aut radiatio ejus duntaxat aliqua, ſive luminis diffuſio ultra vel præter eum, velut è nube circa ejus extremitates, lacinias ſive fimbrias, ut ante dixi. Nam præterea totam Lunam intra iſtum circulum ſeu coronam (qualis-qualis, vel quicquid fuerit) *Orientem* verſus tendentem ego & ille qui mecum aderat planè percipiebamus. [De hac re tamen pertinacitèr aſſeverare nolim, quandoquidem, præter varias calculationes, etiam obſervationes quædam inſtrumentales ſub ipſam Eclipſin factæ (quæ mihi innotuêre) exhibent apparentem Diametrum Lunæ majorem Diametro Solis; una nempe *Oxonii* à Domino *Rookio*, nunc Aſtronomiæ in Collegio *Greſhamo-Londinenſi* Profeſſore meritiſſimo: & altera ab ipſo *Hevelio*, qui curioſiſſimè hanc Eclipſin obſervavit *Gedani*, ubi deprehendit magnitudinem ejuſdem dig. 9.$\frac{1}{4}$ (& D. *Eichſtadius* ibidem, circitèr dig. 10.) & rationem Semidiametrorum Solis & Lunæ dicit tunc inventam eſſe, ut 1000, ad 1033 circitèr, qui exceſſus in *Luna* facit circa 5 m. digiti partem, vel dig. 0. 198, ratione *Solis*, & 0. 192 fere, ratione *Lunæ* ipſius] Atq; hoc modo *Luna* morari videbatur intra *Solis Circulum* per 16m. partem horæ, aut 20m. ſaltem; nam paululùm ante iſtam apparitionem vel ſpectaculum, potuimus umbram Gnomonis (licèt haud fermè ſicut dixi) ſuper Sciatericum cernere, & tunc erat circa 16m. aut 15m. partem horæ ante *Decimam*. Et in principio emerſionis Solis (*Lunâ* oram ſeu marginem ejus directè orientem verſus ocyùs tranſeunte & tegente, (nam Eclipſis ſuper oram quaſi directè occidentalem incipie-

incipiebat) adeo ut pars oppoſita lumen ſenſibile ſtatim redderet, percipere potuimus umbram Stili, eratq; pene in linea horæ decimæ (atq; ſic eſſet centralis copula Luminarium viſibiliter, circa 20m, aut 30m partem horæ ante *Decimam*, viz. 2′ aut 3′, & in fine Deliquii (ſeu ultimo Solis & Lunæ contactu quoad viſum) projiciebatur umbra in lineam horæ 11æ, præciſè quaſi; atq; ſic eſſet medium Eclipſis circa 15m partem horæ ante *Decimam*, *viz.* 4′, & circa 30m partem horæ ante adparentem centralem Σύνοδον, *viz.* 2′, & totum tempus, circa hor. 2 $\frac{1}{5}$. Et profectò Sciatericum hoc cum Inſtrumento iſto horologico armillari, cgregio univerſali, quod vulgò *Annulum* æquinoctialem, vel Horologium æquinoctiale vocamus, proximè quadrabat; namq; unum illic penes me habui magnitudinis vel circumferentiæ uſualis, portabilis, ſuper quo (quâq; ejus diſtantiâ horariâ tantùm quadripartitâ) tempus diei uſq; ad 16m, aut 20m partem horæ, diſcernere potui, æquè ac ſuper aliquo Sciaterio ordinario, vel alio inſtrumento horario, imò rectiùs fortè, ob partium hujus horariarum æquabilitatem. Eſtq; id certè optimum *Horarium Solare Ambulatorium* vel *Viatorium* (ceu *Vade mecum*) atq; hodie apud nos maximè uſitatum. In fine Eclipſeos hic tractatæ, deprehendi Solis altitudinem per *Aſtrolabium* ordinarium nauticum æneum, ponderoſum (ad integros tantùm gradus diviſum) gr. 41 circiter. Sed tot altitudinis gradibus exactis, cum parallaxi Solis Lansbergianâ reſpondente, 1′ 44″, & refractione nullâ; vel potius Braheanâ parallaxi, 2′ 16″, & refractione 0′ 9″ (indeq; veræ altitudini 41° 2′ 7″) & declinationi Braheanæ Solis Boreæ (tunc temporis in 19° 19′ fere ♈, juxta *Origani* Calculum Ephemeridanum à *Tychone*, exiſtentis) 7° 35′, & altitudini Poli, ſeu latitudini loci proximæ 54° $\frac{1}{3}$ ſimul, reſpondet hor 1, m. 7, fere a. m. ſcil. 7 m. fere ante XIm. Et è converſo, vel vice verſâ, horæ XIæ exactæ, ſeu horæ uni ante meridiem integræ, & declinationi iſti Solis, atq; elevationi Poli ſimul, competit altitudo Solis vera, 41° 24′. A quo tempore, ceu finali Eclipſeos, horâ circiter elapsâ, æther nebuloſus, & imbricoſus aliquantulùm fiebat, è parte ſeu plaga Horizontis occidentali, per horam unam & alteram; poſt quod tempus Cœlum reddebatur ſerenum, per reliquum fere diei.

Aer non ſolùm ſub maxima obſcuratione (ſeu viſa ☌) ſed & quantum memini octante horæ, aut plus ante & poſt, tam tenebricoſus erat, ut complures Stellæ planè apparebant circumcirca iſto temporis ſpatio, (Quaſi fere

--Nox Cœlum ſparſerat aſtris.)

Et Volucres (ſeu abſterriti) ſeſe ſubitò congregabant tanquam ad fugam, tacitéq; hàc illàc volitabant, quaſi ad nidulos ſuos, ceu domicilia, vel dormitoria, ut verſus noctem (ſeu tempore veſpertino) ſoliti ſint: erat enim primùm crepuſculi primi veſpertini (ut ita dicam) aut ultimi matutini inſtar (vel ut circa *Serum diei*, aut *extremum noctis*) & in ædibus vix potuêre Populi fere aliquid videre abſq; lucernis per tempus longiuſculum; nec foras ego aut ille alter amicus mecum præſens, potuimus notas ibi à me eo tempore cum Graphio, aut Penicillo ſcriptorio, ex *Oleaſtrenſi* (ſi ſic dicere liceat) vel plumbo iſto (uti meminerim) quod vulgò nigrum vocamus facto, de ipſa Eclipſi, ſuper Chartulam exaratas, facilè oculis haurire, ſub maximo deliquio. Erat namq; tunc fere ſicut *Veſper ſerior*, vel *Aurora prima*, aut

——ſub obſcuræ tenebroſa crepuſcula noctis;
——traherent quum ſera crepuſcula noctem.

Vel *Nocticula* tanquam æſtiva iſto in loco (nam tribus quaſi mediis menſibus æſtivis, ſcil. *Maio*, *Junio*, & *Julio*, (aut amplius) haud ulla nox perfecta ſeu profunda ibi fit: Sed de nocte aliquid cernere licuit (ni multùm fallor) æquè propemodum atq; ſub iſta Eclipſi, in maxima obſcuratione, modò *Sudum* fuerit) Quippe jam revera, *Sol*

Sol atra prætexuit ferrugine frontem; Et
Piceo ſe texit amictu. Nam,
Soror Phœbo fratri lucem intercepit.

[Scribit *Eichſtadius* in ſua Ephemeride hujus Anni, hanc Eclipſin fore totalem ſub longit. gr. 11 ⅓, & latit. Sept. gr. 58, quo ſpectant (inquit) quædam *Scotiæ* Civitates ultra *Edenburgum*, & quæ hiſce adjacent in *Hibernia* atq; *Iſlandia*. Sed tamen *Edenburgum* aliquanto orientalius eſt *Carigfergo*, quam ex variis Mappis, ſeu Chartis Coſmographicis & Chorographicis recentioribus, jacere reperio inter 53 & 55 gr. etiamſi aliquæ aliæ ulteriùs ad aliquot gradus eam extendant.] Multi etiam ex iis qui hic & in locis adjacentibus hanc Eclipſin conſpectabant, non bene potuerunt oculis uſurpare per aliquot dies poſt (imò verò nonnulli vix per ſpatium 2 hebdomadum) ſed illis erat obſcuritas, ſeu hebetudo viſus, qualis Ἀμβλυωπία & Ἀμβλυωγμὸς Græcis dicitur, adeo ut remedia oculis adhibere coacti fuerint aliqui ad viſum acuendum. At verò hoc non adeò mirandum, quum illa oculorum hebetatio ſeu caligatio haud prorſum ab ipſa Eclipſi, ſed partim quoq; à tam longa ante, intentiſſima & valde ſeria in Solem (dum clarè ſplenderet) inſpectione, contrahi poſſet; quemadmodum experientia quotidiana oſtendat, quòd intuitus Solis effulgentis, licet modicus, aliquo alio tempore, oculorum aciem præſtringat, obſcuritatem ſeu caliginem aliquam illis ſtatim offundat, atq; viſum adeo offendat, ut maculæ quaſi parvæ, rotundæ ceu piluiæ variorum colorum ob oculos ſurſum-verſum ſalientes ſeu volitantes repræſententur, uti ipſemet propriis oculis ſæpe-ſæpius inopinatò quaſi expertus ſim, atq; iidem poſt acutiſſimas Febres per multos dies, cum foris ambulaverim, à magna viſûs debilitatione (utq; de aliis apparentiis ſeu phantaſmatis in *Suffuſione*, vulgò (ab *Arabibus*) *Cataracta* dicta (Græcis ὑπόχυμα & ὑπόχυσις) incipiente, obſervatum ſit.) Et hoc inter cauſas *Ophthalmiæ* vel *Lippitudinis* levis ſeu ſpuriæ (quæ à cauſa aliqua extrinſeca utplurimùm (ſi non ſemper) oriri creditur; & non tam Ὀφθαλμία, ſeu *oculi inflammatio*, quàm Τάραξις *Græcis* dicitur, & Latinis, Oculi *conturbatio* vel *perturbatio*) à Medicis vulgò recenſetur, nempe Solis lux vel lumen, & calor, ſeu Radii, & à quibuſdam etiam radii Lunares, ſed non tam facilè. Et profectò quamprimùm ego ex *Hibernia* ad *Londinum* iterùm reverſus ſum, narratum mihi pro certo erat, quoſdam Empiricos ſeu Impoſtores ignaros ibi per aliquot dies ante hanc Eclipſin, Remedia aliqua, ceu *Antidota* (tanquam *Arcana* ab Aſtris petita) in ſuis Schedulis ſeu Tabellis, in Plateis, & Deambulacris extra Urbem ſuſpenſis (ut illis moris eſt) populo, turpilucri ergo propoſuiſſe & promiſiſſe, pro oculis adverſus malignam ſeu maleficam (ut opinati ſint) hujus Eclipſis influentiam, præmuniendis & præſervandis, utpote quod Aſtrologi quidam hic, iſtam Eclipſin horrificam & terribilem vocabant, valdeq; nocivam & pernitioſam futuram, eſſe prædixerant & prædicaverant, ut multum mali, minari & portendere eam judicantes; & tantas tenebras ibidem exinde fieri ac ſi dies in noctem ſubitò, ſeu inopinanter verſus foret: unde Populi inſcii & imperiti, quaſi attoniti & pertimefacti, (ut,

Frigidus adſtiterit circum præcordia ſanguis:
——*Et corda timore micabant.*)

Tenebras caliginoſas & palpandas quaſi, ibi & locis adjacentibus (immò per totam *Angliam*) quales ſemel *Deus* ſuper totam *Ægyptiorum* Terram, pro Plaga vel Supplicio, per manum *Moſchis* immiſit) fere expectabant; & proinde *Diem atram* & diram illam fore, acſi eſſet *noviſſima*. [Quodq; multi in prædictis *Hiberniæ* partibus hujuſce rei planè neſcientes, ſub tempus ipſius obtenebrationis exanimati, metuebant, ita ut aliqui ibi (præſertim mu-

lieres meticuloſæ, quarum unam vel alteram probè novi) non auſi ſint foris oculos ſuos ferre, ſed intus ſe occultè quaſi cohibentes, in præcamina ſeſe contulerunt; nam reverâ tanta Eclipſis in Sole, longo tempore ante hic locorum non contigerat.] Cum equidem iſthæc Eclipſis vix notabiliter (aut paululùm duntaxat) major apparuerit *Londini*, quam Calculus noſtere xhibet, ut ibi obſervata fuit, (prout etiam fere *Oxoniæ*, quæ aliquantùm borealior eſt, vix (aut pauxillùm tantum) ultra dig. 11, à præfato ejuſdem ibi Obſervatore, deprehenſa erar, ut ipſe mihi narravit) adeo ut tam magnæ ſeu profundæ tenebræ haud eam inſequutæ ſint, quin populi ibi ſatis bene potuerunt videre (ſaltem foris ſub maxima defectione ſeu obſcuratione, ut multi mihi (non ſine *Sarcaſmo*) pro vero narrârunt.

Calculus hujus Eclipſeos ad Horizontem *Carigfergi Hiberniæ.*

Calculus noſter conſentit, nam tempus apparens veræ ☌ erat *Londini*, hor. 10 21′ 53″, à media nocte, *Carigfergi* verò quæ occidentalior eſt ſcrupulis horæ 29′, eadem Luminarium congreſſio facta eſt hor. 9 52′ 53″, quo quidem tempore reperitur Angulus meridianus gr. 67 12′, Altitudo med. Cœli gr. 29 19′, Angulus Eclipticæ & Horizontis gr. 36 30′, Nonageſimus gr. 19 21′ ♈, paral. longitudinis 0′ 3″, paral. latit. 46′ 24″, latitudo ☽ vera 45′ 54″, latitudo ☽ viſa 0′ 31″ Auſtrina, pars deficiens 32′ 20″, digiti ecliptici 11 56′. Fuit itaq; Eclipſis hæc fere totalis & centralis, apparebatq; ejus medium paululùm ante horam decimam, quemadmodum obſervavit *Johannes Wyberdus*. M. D.

32. Anno Chriſti 1654, die 2 *Auguſti*, obſervata erat Eclipſis Solis, aliqua ex parte, *Londini*, ab Amico noſtro *Gulielmo Leybourn*. Principium verò ob nubes videri non poſſit, ſed à medio ad finem, tempus & quantitatem accuratè notavit, ut infra videas.

Eandem Eclipſin quoq; obſervavit Reverendus ille Vir *Johannes Palmerus*, *Ectonæ*, ab initio ad finem in conventu Amicorum, unà cum ſociis aliquibus adſtantibus & adſpicientibus, ut ipſe memorat in Catalogo Eclipſium, *p.* 211.

Obſervatio Eclipſis *LONDINI*,				
Ho.	′	″	Dig.	Part
9	2	42	9	50
9	4	30	10	20 ●
9	5	15	10	0
9	11	40	9	30
9	13	0	9	0
9	17	30	8	50
9	21	40	8	0
9	29	15	7	0
9	36	0	6	0
9	43	0	5	0
9	50	0	4	0
9	56	45	3	0
10	2	45	2	0
10	6	15	1	60
10	14	45	0	30
10	16	12	0	Finis.

Obſervatio Eclipſis *ECTONÆ*.				
Ho.	′	″	Dig.	M.
7	47	0	0	0
7	52	30	1	
7	58	30	2	
8	4	0	3	
8	9	0	4	
8	15	0	5	
8	20	45	6	
8	28	0	7	
8	34	0	8	
8	40	30	9	
8	49	0	10	
			10	15
9	0	0	10	
9	9	0	9	
9	18	0	8	
9	25	0	7	
9	31	0	6	
9	38	0	5	
9	45	30	4	
9	51	15	3	
9	57	30	2	
10	3	30	1	
10	9	0	0 Finis.	

JOHANNES WYBERDUS, M. D. *de hac Eclipſi Solis.*

Quod ſimilem fermè Eclipſem 2°. *Aug.* 1654 attinet; (quam ex Aſtronomiæ *Copernico-Lansbergianæ* fundamentis, ſeu Theoricis & Hypotheſibus, ratione trigonometricâ, itemq; ex ipſis Tabulis Lansbergianis, calculatione communi Logiſticâ (exercitationis etiam mathematicæ privatæ ergò) accuratè deduxi ad Horizontem *Londinenſem*. Ejus initium ibi ſpectari non potuit, propter aerem prænubilum, præſertim ſub plaga vel via Solis; Sed ſub initium à me calculatum, *ſcil.* octantem horæ quamproximè ante VIII^{m}. Sol ſplendebat, adeo ut ejus altitudo per Quadrantem ſumi poſſet, quam idcircò tunc deprehendi, unà cum alio Viro in Mathematicis intelligente, mihiq; familiari, 27° (*ſcil.* circa $\frac{1}{4}$ horæ ante 8^{m} per Horologiolum portabile, ſeu ambulatorium vel viatorium ordinarium, quaſi *Vade mecum*, bene diſpoſitum, & Solare ſimul) Et apparebat ille uſq; ad horam 8^{m}. fermè: tumq; nullum erat Eclipſis veſtigium, quod ullo modo cerni poterat; ita ut judicaremus initium vix ante VIII^{m} accidere. At quum primò appareret Eclipſis (nempe per nubem tenuem) videbatur ea ad oculum ſolum, & cum Tubulo optico etiam ſimul, eſſe circa dimidium Diametri vel Diſci Solaris. Et quando apparebat circa dodrantem ejuſdem (Sole tunc parumper elucente) accepi ejus altitudinem, 37 $\frac{1}{4}$ gr. Paulòq; poſt (illo iterum recèns quaſi ſplendente) 38 gr. Sed 37 $\frac{1}{4}$ gradibus convenit parallaxis ejus ex *T. Braheo* (ut circà medium inter maximam & mediam ſuam à Terra diſtantiam exiſtentis) 2′ 21″, & refractio 0′ 21″, atq; inde vera fit altitudo 37° 47′ exactè. Et locus ejus verus vel apparens (ſecundùm illum ex *Origani* Calculo in Ephemeride iſtius anni *, & *Eichſtadium* è Tab. *Longomont.* ſeu *Danic.* ac *Lansbergium* ipſum) in 19° 32′ ♌; & proinde declinatio borea, à *Tychone* 15°. fere (*viz.* 15° 00′ 24″) E quibus & Loci latitudine, ſeu Poli altitudine ſimul 51° 32′, eruitur tempus antemeridianum hor. 8 52′, ſcil. octans horæ circiter ante Nonam. Atq; toto fere tempore abinde, Sol à nubibus ſolutus ſplendebat, adeo ut finis ſeu exitus Eclipſeôs exactè inſpici & intendi poſſet. Quem quidem ego (loco & inſtrumentis accommodis imparatus, ut in prioribus Eclipſibus à me notatis, ad omnes Obſervationes notabiliores faciendas; nullum habens Inſtrumentum præter Quadrantem parvum, cujus Semidiametrus erat 5 unciarum ſeu pollicarium circiter, & quilibet gradus tantùm quadripartitus) animadvertere ſolum ad rem potui, (& quod adminiculo Specularis ordinarii, ac manus contractæ ſeu incurvatæ tanquam Tubuli, ſufficienter præſtiti) & tum per eum firmè tractatum, cepi (ſolus tunc exiſtens) Solis altitudinem 48 gr. præciſè; cui & diſtantiæ ipſius à centro Telluris ſimul, tunc ſecundùm *Lansbergium* 1537 $\frac{1}{7}$ fere ſemidiam. Terræ (vel primùm part. 102609 circiter, quarum Radius Orbis annui, ſive magni Orbis Terræ, adſumitur 100000, nam iſte elevat vel elongat Solem à Terra multo magis quàm aliquis anteceſſorum) reſpondet parallaxis ejus, 1′ 30″, & refractio nulla; atq; ſic vera habetur altitudo, 48° 1′ $\frac{1}{2}$: & locus ejus verus ſeu apparens (ſecundùm illum, & *Tychonem* etiam ex *Origani* Calculo Ephemeridæo) erat in 19° 35′ ♌, & ſic declinatio 14° 58′; è quibus & latitudine Loci ſimul, colligo tempus ſante meridiem breviter, methodo & calculo artificiali Sinico ſubſequentibus, ſicut in Eclipſi Solis *Octob.* 1649, à me factum eſt: nec non naturali tædioſo, quo tam accuratio Calculi artificialis ſeu Logarithmalis, quàm expeditio, liquidò conſtet; aſſumpto ad utrumq; Calculum, eodem locorum, ſeu notarum arithmeticarum, numero, nempe ſeptenario, (utpote ad partes *Radii* ſive Sinûs totalis, univerſalis aut radicalis *, quem breviùs *Holoſinum* nuncupo, quemadmodum & Sinum rectum, univerſè, *Orthoſinum*) quod plerumq; uſus eſt *Pitiſcus* in ſua Trigonometria, & Canone. Atq; utinàm Decimalis, ſeu ſpeciatim Centeſima-

* & ultimâ ſuâ.

* 10000000.

lis Circumferentiæ Circuli diviſio, uti jamdudum Radii ſive Semidiametri; vel partis ſuæ gradualis conſtitutæ, & conſuetæ ſaltem,(nempe, tricenteſimæ-ſexageſimæ) in uſum univerſaliter abiret; eâdem utriuſq; rei ratione exiſt ente, pro ſumma accuratione & expeditione *. Et præterea quod decimalis numeratio Logarithmali in genere, immediatè congruit ſeu correſpondet; ſive eſt ei naturaliſſima & familiariſſima: Sed jam ad rem ipſam.

* & ſic horæ; quæ diviſione minuta prima fere æquipollerent ſexageſimis ſecundis.

Diſtantia Solis à Polo	Mundi	75° 2′	} A.
	Horizontis	41 58 30″	
Compl. Poli ſeu Latitudinis		38 28	
	Sum.	155 28 30	
	Semiſſ.	77 44 15	} S.
Compl. altit. Solis		41 58 30	
	diff.	35 45. 45	

Calculus.

Naturalis		*Artificialis.*	
1. Ut Rad.	10000000	10, 0000000	
ad 75° 2′ S.	9660762	9, 9850114	75° 2′
ita 38 28 S.	6220592	9, 7938317	38 28
ad 4^m S. (36° 56′ proximè)	6009566	9, 7788431	36 56 proximè.
2. Ut hic 4^s. S.			
ad 77° 44′ 15″ S.	9773238	9, 9899766	77° 44′. 15″
ſic 35 45 45 S.	5844265	9, 7667300	35 45 45
ad 7^m S. (71°. 53′ proximè)	9504412 M.	9, 9778635 A.	71 52 fere.
Radius	10000000	10, 0000000	
Radix	9749057	9, 9889318,	77° 7′ 10″.

Pro Sinu meſologico, 77° 8′ 14″ fere (*viz.* de 95044120000000) compl. dimidiæ diſtantiæ ☉ à Meridiano Æquatoriæ, ſcil. 12° 51′ 46″. Quæ itaq; duplicata, 25° 43′ 32″, dant totam ejus diſtantiam; & quæ in tempus verſa, dant 1 hor. 42′ 54″, & proinde finem Eclipſis, Ho. 10 17′ 6″, a. m.

Meſologarithmus, vel Sinus meſologicus (idem hic ac meſarithmeticus) complementi dimidiæ diſtantiæ ☉, &c. 12° 52′ 50″; ſicq; tota diſtantia erat 25° 45′ 40″, quæ in tempore dant 1 h. 43′ 3″ fere, a. m. & inde finem Eclipſis, ho. 10 16′ 57″, a. m. *viz.* ho. 10 17′ ferè.

Quod tempus convenit cum eo ab aliis quibuſdam hic ſeparatim obſervato [qui ſuas Obſervationes mecum tunc communicabant, nempe à D. *Rookio* antè nominato, in Collegio *Greſhamiano*, cum aliis quibuſdam adſtantibus & adſpicientibus; & à D. *Guliel. Leybourn*, ſimul cum ſociis aliquibus aſſiſtentibus; per Horologiola duo minutaria ambulatoria, & Perpendicula, aliáq; Organa obſervatoria exquiſita (etſi *Perpendiculum* ab *Hevelio* & pleriſq; aliis, jam pro optimo inſtrumento ad temporis rationem minutatim ſeu ſcrupulatim referendam habetur) cum Tubis peramplis unà adhibitis] ad ipſiſſimum minutum primum (nam conveniebant illi in ipſis ſecundis fere, invenientes finem Deliquii eſſe Hor. 10 16′ 12″ circiter, & ſic à me diſcrepantes tantùm 54 ſcr. ſec. calculo naturali, & 45 ſec. calculo artificiali. Parallaxis

autem

autem Solis altitudini ejus acceptæ 48° reſpondens, ſecundùm *T. Brabeum* (ut circa prædictam à Terra diſtantiam exiſtentis) erat 1′ 58″;, & refractio nulla; unde vera altitudo 48° 1′ 59″ fere (h. e. 48° 2′ fermè) & locus Solis apparenter (ſecundùm illum, *Longomontanum* ac *Lansbergium*) in 19° 35′ ♌ completè fere: atq; ſic declinatio (juxta *Tychonem*) 15° proximè (ſcil. 14° 59′ 30″ circiter.) E quibus unà cum latitudine loci (51° 32′) habetur tempus diei, hor. 10 16′ 44″ pro fine Eclipſeos; nempe hor. 1 43′ 16″ ante meridiem, hoc eſt, ſerius tempore à dictis viris obſervato, tantùm ſemiſſem circiter minuti primi. Sicq; hæc ſupputatio à *Tychone*, ad veritatem paulò propiùs accedit quàm quæ a *Lansbergio*. [Deprehenſa erat altitudo Solis apparens, ad finem Eclipſis *Oxonii*, per D. *Walliſium*, Geometriæ ibidem Profeſſorem publicum ſeu *Savilianum*, 47° 57′; & tempus per Horologium ambulatorium, &c. hor. 10 14′; uti in ſua hujus Eclipſis deſcriptione videre eſt.]

Finis autem ex meo Calculo *Lansbergiano*, (utiq; cætera tempora maximè obſervabilia quæ obſervari poſſent, cum obſervatis comparata) erat,

	h ′ ″	
	10 27 35	ſerior ſeu poſterior obſervato utroq; 11′ circiter.
Initium	7 44 42	
Sicq; medium	9 6 8	ſerius ſeu poſter. obſerv. ſub ſum. ecl. 1′ 38″.
viſa ☌	9 3 35	citior ſeu prior obſervato eodem, 0′ 55″.
diff.	0 2 33.	

niſi ſumatur obſervatum antecedens, ſeu primum omnium; vel ſubſequens, ſive tertium, pro tempore viſualis Conjunctionis, vel pro medio Eclipſeôs; tumq; erunt differentiæ temporis inter noſtra Calculata & ſua Obſervata iſtæ ſequentes.

	Calculata.	*Obſervata.*	*Diff.*	
	h. ′ ″	m h. ′ ″	h. ′ ″	
		1 9 2 42	0 0 53	fere ut inter noſtram viſam ☌, & 2m obſervatum.
Viſa ☌,	9 3 35			
		3m 9 5 15	0 1 40	fere ut inter noſtrum medium & idem obſervatum.
		1m 9 2 42	0 3 26	
Medium	9 6 8			
		3m 9 5 15	0 0 53	dif. eadem quæ inter noſtram viſam ☌ & 1m obſervatum
Diff.	0 2 33	0 2 33	0 2 33	

Quorum duorum temporum calculatorum, & duorum obſervatorum, ac horumce ad calculatum poſterius, ſeu tempus medium differentiarum differentiæ, inter ſe concordant adamuſſim.

Sed ſecundum tempus obſervatum (hor. 9 4′ 30″) reſpondens ſummo deliquio obſervato (dig. 10, 20, decimali diviſione, quæ ſunt 10 12′, ſexagenali, h. e. 10 ⅕ communiſſimâ, ſeu naturali dictâ) erat certè vel viſæ conjunctionis, vel medium defectionis: Nam ab iſto ad ultimum omnium, ceu finem Eclipſis, (ſcil. hor. 10 16′ 12″) fit hor. 1 11′ 42″, pro dimidio tempore; vel inter viſam conjunctionem & finem; cujus duplum igitur eſt hor. 2 23′ 24″, pro toto tempore; quod a noſtro calculato (hor. 2 42′ 53″) deficit 19′ 29″; & dimidium illud à noſtro inter viſam Conjunctionem & finem calculato (hor. 1 24′ 00″) deficit 12′ 18″. Quæ quantitas ſeu magnitudo defectus obſervata fuit à D. *Leybourn* per *Teleſcopium* am-

 plum,

plum, cum aliis mediis requiſitis ſimul in conclavi obſcurato (conſentiens cum mea Calculatione exactè fere, quæ dat dig. 10$\frac{1}{3}$ uti & tempus ejuſdem obſervatum, in laudem *Lansbergii*, hâc vice) & à D. *Rookio*, metæ aliquantulo propinquiùs (uti reliquis etiam viſum fuerit) dig. 10$\frac{1}{6}$ circiter. Atqui momentum temporis articulo ſummæ defectionis competens, ſe non certum habere mihi profitebatur, nec in aliqua Eclipſi id immediatè deprehendi poſſe, ob motum Eclipſeos (ut dicam) valde tardum, in incremento & decremento aliquantiſper circa ejus ſtatum quaſi, vel ſummum, haud ullo pacto perceptibilem, ſed mediatè duntaxat ex initio & fine priùs obſervatis, medium Eclipſis habetur; quod aliqui volunt eſſe tempus ſummi deliquii ſeu maximæ obſcurationis, tam in Eclipſi Solari (niſi fallor) quam Lunari (& vulgò veræ Oppoſitionis etiam in Lunari.) Alii verò tempus viſæ Conjunctionis & maximæ defectionis vel eclipſationis in Sole, pro uno eodemq; accipiunt; & alii fortè omnia hæc tempora inter ſe diſcernunt. Verùm mihi veriſimilius videtur (idq; partim ex aliquibus obſervationibus) tempus viſæ ☌ & maximæ defectionis vel eclipſationis idem eſſe: uti in Eclipſi Lunari, tempus veræ Oppoſitionis & ſimilis Obſcurationis; quandoquidem motus ſeu mutatio Eclipſis non eſt æqualis ab initio ad finem; (vel ab initio ad medium aut ſummum ejuſdem creſcentis, & à medio vel ſummo ad finem decreſcentis.) Nam tempus obſervatione acceptum ſub ſummum deliquium (ſi modò exactè haberi poſſit) & medium tempus inter principium & finem, etiam obſervatione accepta, differunt quantùm tempus ordinarium inter viſam ☌ & medium Eclipſis verum, (in Sole) & inter veram ☍ ac medium Eclipſis (juxta *Keplerum* primò & præcipuè, ni fallor) per calculationem inventum. Etenim apud *Tychonem* in Eclipſi Lunæ nullum hujuſce rei exemplum videre poſſum. Ex hiſce autem Obſervationibus, jam haud improbabilitèr colligere licet, priorem Eclipſin magnitudine vix ſenſibiliter (ſi quidpiam omnino) computi noſtri limitem *Londini* exuperâſſe, *viz.* Solis *Martio*, 1652.

Tempus apparens veræ ☌ erat *Londini*, hor. 10 14′ 23″ à media nocte, locus verus Solis & Lunæ gr. 19 35′ 6″ ♌. Anomalia latitudinis ☽, ſig. 5. gr. 24 28′ 6″, Horizontalis parallaxis ☽ à ☉ 56′ 50″, Aſcenſio recta Solis gr 142 2′, Aſcenſio recta M. C. gr. 115 38′, medium Cœli in ecliptica gr. 23 45′ ♋, Angulus meridianus gr. 80 3′, Altitudo M. C. gr. 59 54′, Nonageſimus gr. 18 1′ 49″ ♋, Altitudo Nonageſimi gr. 60 24′, paral. longit. 25′ 52′, latit. 28′ 4″.

Cumq; hæc ☌ ecliptica in Quadrantem Zodiaci orientalem incidat, ad unam horam citiùs, *viz.* 9 14′ 23″, erit in medio Cœli gr. 9 43′ ♋, Angulus meridianus gr. 85 48′, Altitudo Nonageſimi gr. 61 43′, elongatio ☉ à Nonag. gr. 42′ 5″, paral. longit. 33′ 33″, paral. latit. 26′ 56″, differentia paral. longit. tempore dato, 7′ 41″; Horarius motus ☽ à ☉ verus 32′ 56″, viſus 25′ 15″, atq; hinc intervallum inter veram & viſam ☌ erat hor. 1 1′ 28″ ſubtr tempus ergo viſæ ☌ incidit in *Auguſti* diem 2, hor. 9 12′ 55″ à media nocte.

Ad tempus viſæ ☌ reperitur Angulus meridianus gr. 85 56′, Altitudo M C. gr. 61 39′, angulus Eclipticæ & Horizontis gr. 61 44′, Elongatio à Nonageſimo gr. 42′, 21″, paral. longitudinis 33′ 43″, paral. latitudinis 26′ 55″ auſtrina, latit. Lunæ vera 32′ 1″ borea, latitudo viſa 5′ 6″ etiam borea, Semidiameter Solis 16′ 6″, Lunæ Semidiameter 16′ 19″, Summa 32′ 25″, Pars deficiens 27′ 19″, Digiti ecliptici 10 11′. conſentientes Obſervationi, quæ habet digitos 10 10′.

Scrupula incidentiæ, ſeu caſûs colliguntur 32′ 1″, Horarius motus viſus unâ horâ ante viſam ☌ 26′ 39″, adeoq; tempus incidentiæ eſſet hor. 1 12′ 5″, ac proinde initium Eclipſeos *Londini*, hor. 8 0′ 50″, quod convenit cum obſervatione Doctoris, qui judicavit Initium vix ante octavam accedere.

Horarius motus viſus unâ horâ poſt viſam ☌ invenitur 25′ 16″, ita ut tempus repletionis ſit hor. 1 16′ 1″, & ita finis Eclipſeos hor. 10 28′ 56″, ſcil. ſerior obſervato à D. *Leybourn* facto, 12′ circiter.

3. An-

33. Anno Chriſti 1659, die *Novembris* 4, facta eſt Eclipſis Solis, cujus finem obſervavimus *Luffenhamiæ*, hor. 4 7′ poſt meridiem. In medio Eclipſis deficit Sol, digitos 8.

Tempus apparens veræ Conjunctionis contigit *Londini*, die 4 *Novembris* hor. 2 40′ 5″, ſed *Luffenhamiæ*, hor. 2 37′ 41″, quo tempore Luminaria inveniuntur in gr. 22 8′ 47″ ♏, Anomalia latitudinis ☽ à ☊ gr. 8. 44′ 45″, aſcenſio recta Solis gr. 229 43′, Aſcenſio recta M. C. gr. 269′ 8″, Angulus meridianus gr. 89 59′, Altitudo M. C. gr. 13 49′, Nonageſimus gr. 27 46′ 38″ ♎, Elongatio ⊙ à Nonageſimo gr. 35 37′ 51″, paral. longitudinis 8′ 0″, latitudinis 55′ 47″, Sol erat in Quadrante occidentali, ergo viſa Synodus ſequebatur veram 17′ 51″, & viſa Conjunctio conſpecta eſt *Luffenhamiæ*, hor. 2 55′ 32″ poſt meridiem. Datur tunc Aſcenſio recta medii Cœli gr. 273 37′, Medium Cœli in Ecliptica gr. 3 19′ ♑, Angulus meridianus gr. 88 33′, Altitudo Nonageſimi gr. 13 56′, Diſtantia Solis à Nonag. g. 47 1′ 4″, paral. longit. 10′ 7″, Diſtantia ☽ à ⊙ 10′ 7″, paral. latit. 55′ 46″, Latitudo ☽ vera 46′ 19″ borea, ergo Latitudo Lunæ viſa 9′ 27″ auſtrina, Semidiametrus ⊙ 16′ 33″, Lunæ 16′ 30″, Semidiametrorum ſumma 33′ 3″, Pars deficien. 23′ 36″, Digiti ecliptici 8 33′.

Scrupula Incidentiæ 31′ 40″, Tempus Incidentiæ hor 1 12′ 9″, Tempus Repletionis hor. 1 8′ 6″, Intervallum inter medium eclipſis & viſam ☌ 1′ 54″ add. ergo initium eclipſis erat hor. 1 45′ 17″, finis hor. 4 5′ 31″, haud aliter quàm obſervavimus *Luffenhamiæ*.

34. Anno Chriſti 1661, die 20 *Martii*, tempore matutino, facta eſt Eclipſis Solis, in cujus medio defecit ⊙ ſeptem digitos ab Auſtro, prout obſervavimus *Luffenhamiæ*.

Tempus dici in maxima Solis obſcuratione, necnon in principio & fine Eclipſeos, non obſervare potuimus, erat enim Cœlum majori ex parte totius durationis, nebuloſum; Calculus itaq; eclipſis breviter exhibemus.

Tempus apparens veræ ☌ Luminarium contigit *Londini*, hor. 9 41′ 1″ à media nocte, *Luffenhamiæ* autem, quæ ſcrupulis horæ 2′ 24″ occidentalior eſt, hor. 9 38′ 37″, quo tempore ⊙ eſt in gr. 10 13′ 49″ ♈, & ☽ in gr. 10 13′ 49″ ♈, Anomalia Latit. ſig. 5 gr. 23 22′ 7″, Medium Cœli gr. 2 2′ ♓, Angulus meridianus gr. 68 58′, Altitudo medii Cœli gr. 26. 33′, Altitudo Nonag. gr. 33 23′, elongatio ⊙ à Nonag. gr. 2 30′ 26″ ad ortum, adeoq; datur paral. Longit. 1′ 24″, Latit. 48′ 30″.

Sol erat in Quadrante orientali, & viſa ☌ præcedebat veram 2′ 59″, adeo ut viſa Luminarium ☌ cadat *Luffenhamiæ*, hor. 9 35′ 38″ a media nocte; ad quod tempus dabitur medium Cœli in ecliptica gr. 1 15′ ♓, Angulus meridianus gr. 69 6′, Altitudo Medii Cœli gr. 26 16′, Altitudo Nonag. gr. 33 6′, Diſtantia ⊙ à Nonag. gr. 3 7′ 0″, paral. Longit. 1′ 44″, paral. Latit. 48′ 40″ auſtrina, Latitudo ☽ vera 34′ 46″ borea, latitudo viſa 13″ 54″ auſtrina, Semidiameter Solis 16′ 19″, Lunæ 16′ 40″, Summa Semidiametrorum 32′ 59″, Pars deficiens 19′ 5″, ergo erunt digiti ecliptici 7 1′. Qui noſtræ Obſervationi ad amuſſim conſentiunt.

Obſervavit etiam hanc ⊙ Eclipſin D. *Johannes Hevelius*, *Dantiſci*, deprehenditq; medium Eclipſis, horis à media nocte 11 20′, & digitos eclipticos 8 fere. Initium hor. 10 13′ 15″, finem hor. 12 27′ 3″.

Obſervatio Eclipſis Solis 1661, à Periti ſſimo D. Joanne Hevelio Gedeni facta.

Tempus apparens veræ ☌ erat *Dantiſci*, horis à media nocte 10 55′ 1″, quo tempore data eſt paral. Longitudinis 8′ 56″, Latitudinis 44′ 55″. Sed quoniam verſabatur hæc Luminarium Conjunctio in occidentali eclipticæ quadrante; itaq; ad ſemihoram poſt veram Synodum, dabitur paral. Longit. 12′ 53″, Latit. 43′ 9″, ſemihorarius motus Lunæ à Sole viſus 13′ 34″. Ergo apparens Luminarium Synodus fuit *Dantiſci*, h. 11 14′ 46″ à media nocte, datur tunc,

Paral.

Parallaxis Longitudinis 11′ 31″, Latitudinis 43′ 45″ auſtrina, Latitudo Lunæ vera 33′ 32″ borea, Latitudo Lunæ viſa 10′ 13″ auſtrina, pars deficiens 22′ 46″, digiti ecliptici 8 22′.

Scrupula Incidentiæ colliguntur 31′ 22″, Horarius motus viſus unâ horâ ante viſam Synodum 27′ 25″, erat ergo tempus Incidentiæ hor. 1 8′ 39″, Horarius motus viſus unâ horâ poſt viſam Synodum 26′ 56″, ergo tempus Repletionis hor. 1 9′ 52″, quocirca principium Eclipſis *Dantiſci*, hor. 10 6′ 7″, & finis hor.. 12 24′ 38″, omnibus fere modis ut *Hevelius* obſervavit. Si verò verum Meridianorum diſcrimen inter *Londinum* & *Dantiſcum*, ſit hor. 1 18, quemadmodum habent *Longomontanus*, *Eichſtadius*, & alii, tum Calculus noſter obſervationi accuratè conveniet. Sed hoc Obſervationibus aliorum relinquo.

FINIS:

Carmen

Quod in Anglicana hujus ex parte operis, aliquot abhinc annos, editione, in ipſiſſimum, ingenioſiſſimum Auctorem, D^m *Vincentium* (ſeu *Vincentem* *) *Winginum*, conditum erat

* Quod nomen Anglicè *Vincent Wing* ſonat Latinè *Vincens Ala*, quaſi Ala aſtralis, ſeu ad, inter & circum aſtra, ac ab aſtris, hinc illinc, vel hac illac volans; ſicq; demum aſtra quaſi *Vincens*.

Hexaſtichon

Heroico-elegiacum: vel Hexametro-pentametrum.

Ecce vir alaris, volitans ad ſidera ſumma:
Cui luſtrare * *Domos cura fuit ſuperas.*
Non * Alæ *aut* Scalæ Diggesî *attingere poſſint*
Ulteriùs Cœlorum alta Theatra quidem,
Quàm una hæc A L A poteſt, tabulata nitentia Templi
Quæ aſtriferi petit, ac pervolat aſſiduè.

à *Joanne Wyberdo*, M. D.

* Aſtrologicas non intendo.
* Libellus *Thomæ Digges* Generoſi Angli, in novam ſtellam *Anno* 15-2, cui titulus eſt, *Ala ſeu Scala Mathematica*, &c. Et quem illuſtris Generoſuſq; Danus *Tycho Brahe*, in ſuis Progymnaſmatis de eadem ſtella egregiè examinavit, &c.

Qui Lectorem deſiderat, ut inter Errata & Menda quæcunq; in hoc Volumine Prælum præterlapſa, hæc ſpecialiter Calamo corrigere velit, videlicet, in *Par.* 3. *pag.* 345, *lin.* 11. pone Comma poſt *Medicinæ*, & dele comma poſt *Aſtrologorum*, *l.* 22. poſt *fuit*, lege vel potiùs ſcribe (cui & pars ſeu praxis iſta obſervatoria vix magis quàm calculatoria uſu percepta fuit.) *l.* 33 ſcr. nonnulliq; *p.* 346, lineâ completâ 19. dele parentheſim poſt *vertice*, & *l.* 20. pone ſimilem poſt *tribuitur*. *p.* 347, poſt literas P. M. obſervationibus Eclipſis adjectas, ſcr. medium per ſe obſervatum, ut circa ſummum Deliquii, quod diſcrepat defectivè à medio inter initium & finem obſervata, ſcrup. 2′, 6″, quantulum circiter temporis ordinariè intercedit inter medium Eclipſi & viſam copulam. *p.* 348. *l.* 10, (poſt calculationes) ſcr. toti Philoſophiæ. *p.* 350. *l.* 25. pro *vix* ſcr. non. *l.* 29, dele *ferè*. *l.* 30. include parentheſi, *ſive Tubum opticum*, & dele accentum ` ſupra amplius, ut reſpondeat id adjectivè ad *Teleſcopium*. *p.* 351. in ſummo marginis ſcr. 1649. *p.* 352. *l.* 10. ſcr. primò, cùm juxta *Origani* ephemerides, è Tabulis *Solis* Tychonicis; tum juxta *Eichſtadii*, &c. *p.* 357. *l.* 15. ſcr. propriâ. *p.* 359 *l.* 20. ſcr. præſtinguat. *p.* 360. *l.* 5. ſcr. exhibet. *l.* 10. pone parenth. poſt *foris*. *p.* 361. *l.* ult. &c. ſcribe, Atq; utinàm Decimalis circumferentiæ Circuli diviſio, uti jamdudum Radii ſive Semidiametri; vel ſpeciatim centeſimalis partis ſuæ gradualis, &c. Nam aio hic incidenter & inſuper, quòd talis totius Circumferentiæ diviſio eſſet potiùs milleſimalis ſeu millenaria, quàm centeſimalis ſive centenaria; niſi quòd illa exiſtimetur forſan nimis numeroſa, uti hæc non ſatis; etſi parùm aut nihil refert quæ vel qualis ſit ejuſdem diviſio, quantùm ad Logiſticen vel ſexagenalem vel decimalem; quandoquidem in utraq; partes Integrales ſeu primariæ, ut appellem (vulgò Gradûs vocatæ, & qui à nonnullis Partes planè & plerunq; vocantur) per ſe ſervantur integrè, ſeu ſeparantur à ſecundariis, ut earum particulis (quæ vulgò minuta & ſcrupula vocantur) ſicut hæ etiam ordinariò & quaſi neceſſariò inter ſe ſeparantur, præſertim in abaco ſexagenario, ceu totidem diſtinctæ aut diverſæ, ſingulæq; ſpecies logiſticæ, continuâ vel ſexegenariâ, vel decimanâ ſubdiviſione, infinitè

procreatæ; quæ verò cunctæ in abaco decumano ſeu decimali, commiſceri aut confundi, non impropriè & imperitè, vel non ineptè prorsùm poſſunt, quaſi ſub una ſpecie vel denominatione (ſcil. *decimarum ſeu Decimalium* ſimplicium aut primarum; *centeſimarum, milleſimarum* &c. prout Logiſtæ viſum fuerit, loco *primarum, ſecundarum, tertiarum* &c. ſexageſimalium, perpetuò disjunctarum, ſeu diſtinctarum) ut benè notum eſt, & aliquando tactum (imò unà cum ipſis integris) Veruntamen Circulo Zodiaco in ſpecie, decimalis diviſio ſeu partitio gradualiter convenire nequit, propter irregularem & irrationalem indè (ut dicam, licèt æqualem) XII. Signorum diſtributionem; ſcil. à Denarii, vel numeri cujuſcunq; decimani ſeu decimalis, per Duodenarium diviſione. Quamobrem (meo judicio) circumferentiæ Circuli in genere, ſeu universè, ſexagenaria quædam (ſeu quodammodò) diviſio gradualis, quaſi ſexageno-decimalis, utpotè à Radio decimali (ſeu decimaliter diviſo) maximè tranſumpta, optimè congruat: nempè quemadmodùm antiquitùs Radius ſive Semidiameter in 60. partes primùm diviſa fuit (qui numerus ſenario & denario conſtat, ceu articulus ciphralis aut circularis, & ſic ſenario-denarius exiſtit, vel vocari poteſt, perindè ac ſexagenarius) & indè in plures ejuſmodi particulas ad infinitum, continuâ decuplatione, ſive circulari additione vel augmentatione, tanquam decimali compoſitè ſeu conjunctè; ſicut in antiquiore aut ſexagenario, potiuſve ſexageno-decimano ut dicam, Canone mathematico ſeu trigonometrico videre eſt) Cui æqualis exiſtens chorda ſeu ſubtenſa ſextantis Circuli (ut latus Hexagoni eidem ordinatè inſcripti) etiam totidem partes indè adepta eſt, ſicq; arcus ipſe reſpondens congruenter; & hinc tota circumferentia 360. ita nunc poſito ſive ſumpto Radio decimaliter partium 100 tantùm, pro 60. (uti ponitur pars quælibet circumferentiæ, tum primaria ſeu integralis aut gradualis, tum ſecundaria ſeu minutaria infinitè conſimiliter) erit exinde ſubtenſa ſextantaria prædicta (ſeu chorda hexagonica) etiam 100. partium; atq; ſic arcus ipſe ſextantalis 100; & conſequenter tota Circumferentia 600. partium earundem; hincq; quodlibet ſignum 50. gradûs habebit exactè (qui numerus ſexcentarius haud longè cadit à medio inter 360. & 1000; at non tam longè à medio inter 100. & 1000. Propiùs autem multo accedit is ad medium inter iſtos duos medios numeros, ut non multùm ab illo diſtans. Quodq; fortè obſervam non omnino indignum ſit) Erit ideò circumferentiæ numerus gradualis 600. reſpectu præcipuè Circuli ſigniferi, accommodatiſſimus. Quod autem hic proponere libuit & licuit, quoniam hactenus ab aliquopiam propoſitum non novi; quanquàm decimalis diviſio & numeratio à multis viris, præſertim Anglis ni multum fallor, tam in aſtronomicis quàm in geometricis ac arithmeticis in genere, utpote naturaliter expeditiſſima & exquiſitiſſima, publicè propoſita & prædicata fuit. Sed tanta fuit hucuſq; plerorumq; pertinacia & ignorantia vel inconſiderantia (ſicut in aliis præcipuis artibus & ſcientiis partim, ſcil. philoſophicis plerumq;) ut viam veterem & vulgarem, licèt magis moleſtam & tædioſam, pro novella ſeu neoterica, certò paratiore aut promptiore, deſerere dedignati ſint: Cujus tamen rei principium & fundamentum mihi viſum eſt fuiſſe Semidiametri ſeu Radii circularis diviſio decimana ſive decimalis, prout in principio meæ *Tactometriæ* ſeu *Tetagmenometriæ*, ante annos non paucutos Anglicè editæ, notavi; Eandemq; diviſionem ſemidiametralem à *Johanne Regiomontano* primùm factam fuiſſe, poſtquàm ille ſexagenariâ (uti *Ptolemæus*, & alii antè) diù uſus fuerat, utpote qui tandem animo cogitabat hanc eſſe multo meliorem, eo quòd *Unitas* multò majus & melius præſtaret numerando ſeu calculando compendium, quàm *Senarius*; ſicq; ſtatuebat vel ſumebat Radium ad particulas 10000000. aut plures, prout ego ab autore quodam aſtronomico, aliquantùm etiam annoſo ſcriptum tunc accepi: quod tamen aliis pleriſq; nondum ſatis conſtat; quiſnam ſcil. hanc Radii ſeu Semidiametri partitionem primus excogitavit aut propoſuit; quoniam in ejus operibus mathematicis, ſeu ſpecialiùs in ſuo Triangulorum Canone & calculo, ea non habetur, ſed ſolùm ſexagenaria (quaſi ſexageno-decimalis, ut priùs dixi) ad partes 6000000, aut plures.

Quæ

Quæ quinetiam Logiſtica, ſeu numerationis ratio, aliquid conferre poſſit Tabulis ſeu Canonibus motuum mediorum ſeu æqualium Planetariorum condendis, ſcil. per *Centenas* ('Εκατοντάδας) motuum vel menſurarum gradualium atq; temporum, ab Æra vel Epocha certa, computo inſtituto, quemadmodùm per *Sexagenas* ('Εξηκοντάδας) primùm in Canonibus ejuſmodi *Alphonſinis* commodiſſimè ſeu ſcrupuloſiſſimè factum erat: atq; indè in *Copernicanis* omninò etiam: dein *Prutenicis*, ac *Lansbergianis* (ſeu *Zelandianis*, ut aliàs nuncupem) potiſſimè: demùmq; partim in præſentibus *Wingianis*.

Porrò autem in pag. 362, paucis ectypis, ſeu exemplis typographicis primò impreſſis, ſub Calculo naturali, ubi numerus ſinicus (ſive Sinus numericus) ſextus bis ponitur, inferior delendus eſt, & in ejus locum reducendus ſeptimus, qui è proprio loco ibi detruditur; & indè etiam ultimus, vel Sinûs totius numerus iterùm, &c.

FINIS.

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